DECEMBER 2005
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Anchorage Bowl 2025 Long-Range Transportation Plan

WITH 2027 REVISIONS

Prepared for

Alaska Department of Transportation and Public Facilities

AMATS

Municipality of Anchorage, Anchorage Metropolitan Area Transportation Solutions

Prepared by

The CH2MHILL Team

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ANCHORAGE BOWL 2025 LONG-RANGE TRANSPORTATION PLAN

Prepared by

The CH2MHILL Team

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Approved December 20, 2005
AMATS Policy Committee

Prepared for

Alaska Department of Transportation
and Public Facilities

Municipality of Anchorage, Anchorage Metropolitan
Area Transportation Solutions

December 2005

Mark Begich

Gordon Keith

A Message from the Mayor and DOT&PF Central Region Director

We are pleased to present this Anchorage Bowl 2025 Long-Range Transportation Plan. This plan outlines how we can improve our transportation system to make Anchorage a better place to live, work, and raise future generations of Alaskans. It complements the vision we mapped for our community in "Anchorage 2020," our comprehensive plan for development.

A well-functioning transportation system plays a vital role in our economy and quality of life. Every loaf of bread, piece of clothing, and stick of lumber is delivered on our road system. Every visit to the doctor, trip to school, and excursion on the bike trails relies on some element of the transportation system.

Anchorage is a city on the move, yet traveling around town today you can see signs that the transportation system is failing to keep pace with development and population growth. Travel delays are on the rise. Congested roads and intersections impact our daily lives and make travel more hazardous for the public. In neighborhoods, citizens are seeking ways to discourage cut–through traffic.

Anchorage is moving into an era of infill and redevelopment because undeveloped land parcels are limited. We are living with a development pattern that was decades in the making. The easy solutions to address our transportation problems were tapped out years ago. It can no longer be "business as usual." Therefore, we need a balanced transportation system that includes a connected highway network, robust transit system, integrated trails, and other elements to make our current system more efficient. We need to build missing links in our road, sidewalk, and trail systems, and do a better job of maintaining them throughout the year.

To achieve this, Anchorage must implement programs including:

- Developing a new highway connection between the New Seward and the Glenn Highways
- Providing better year-round maintenance of existing and future roads, sidewalks, and trails
- Developing an effective Express Bus Transit and High Occupancy Vehicle strategy for the Glenn Highway Corridor
- Significantly expanding People Mover and other forms of transit
- Investing in pedestrian and bicycle improvements in key areas as a way to support alternative modes of transportation
- Developing new road connections where significant out-of-the-way travel is occurring and impacting more people

These programs will form the basis for a balanced transportation system to take us well into the 21st century. However, implementing the recommendations of the plan will be a challenge and there are no easy answers. Decisions will be tough. Some projects will be difficult to

develop and funding issues are significant. It will take discipline from policy makers and support from the public to move forward. The plan will require financial support at the federal, state, and local levels, and new revenue measures may be required. We must have a long-term perspective and make decisions with the whole community in mind.

Some of these projects and programs will be expensive. However, in the long run, it will be more expensive for the community not to fund them. It's an exciting time for Anchorage as we move forward to improve our transportation system and build a legacy for future generations.

Sincerely,

Mark Begich
Mayor

Gordon Keith
DOT&PF Central Region Director

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Anchorage Bowl 2025 Long-Range Transportation Plan
Approved by the AMATS Policy Committee
Date: December 20, 2005

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CHAPTER 1. A New Transportation Plan

Why develop a new plan?

The year 2005 marks 90 years since Anchorage emerged as a community serving as headquarters for railroad construction in Alaska. Like any major center of commerce, Anchorage relies heavily on transportation infrastructure and services for mobility, economic activity, and connectivity to deliver goods and services. The progress of transportation, specifically its evolution in serving the population and traffic growth, is integral to the character and function of the Anchorage community.

To craft a vision and plan for Anchorage's future, residents, business leaders, community organizations, and government officials have devoted more than 4 years of deliberate and dedicated efforts since the 2000 Millennium. This document frames a plan for transportation facilities and services to ensure mobility and accessibility throughout the community and serves to both complement and act as a component of the land use plan, goals, and objectives framed in *Anchorage 2020: Anchorage Bowl Comprehensive Plan* (Anchorage 2020), completed in 2001.

This Anchorage long-range transportation plan (LRTP) is an important milestone. It is founded on a thorough and integrated assessment of economic projections for Southcentral Alaska; explicit forecasts of population, housing, and job locations; and analyses of the travel patterns of households, workers, freight movers, and other business segments. The plan addresses all modes and components of a fully integrated and comprehensive transportation system for the region. And it is founded on a proactive, open, continuing dialog with community members. This communication process and the resulting LRTP help to define and qualify the enormous investments in the system and to meet criteria required for ongoing federal funding.

Transportation is a vital part of the daily lives of Anchorage residents as well as the activities of the business community, service organizations and institutions, government agencies, and the military. The Anchorage transportation infrastructure of roads, airports, port, railroad, transit services, bike paths, and pedestrian facilities is extensive. It is the product of decades of policies, decisions, and investments. It is the starting point for the future.

In 2002, more than 1 million personal and business trips were made every weekday; with each trip, the transportation system moved persons and goods from one point to another. According to the U.S. Bureau of Labor Statistics, consumer expenditure surveys show the typical Anchorage household allocates more than 18 percent of disposable income for transportation. That is a combined $1 billion expended annually for transportation by all Anchorage households.

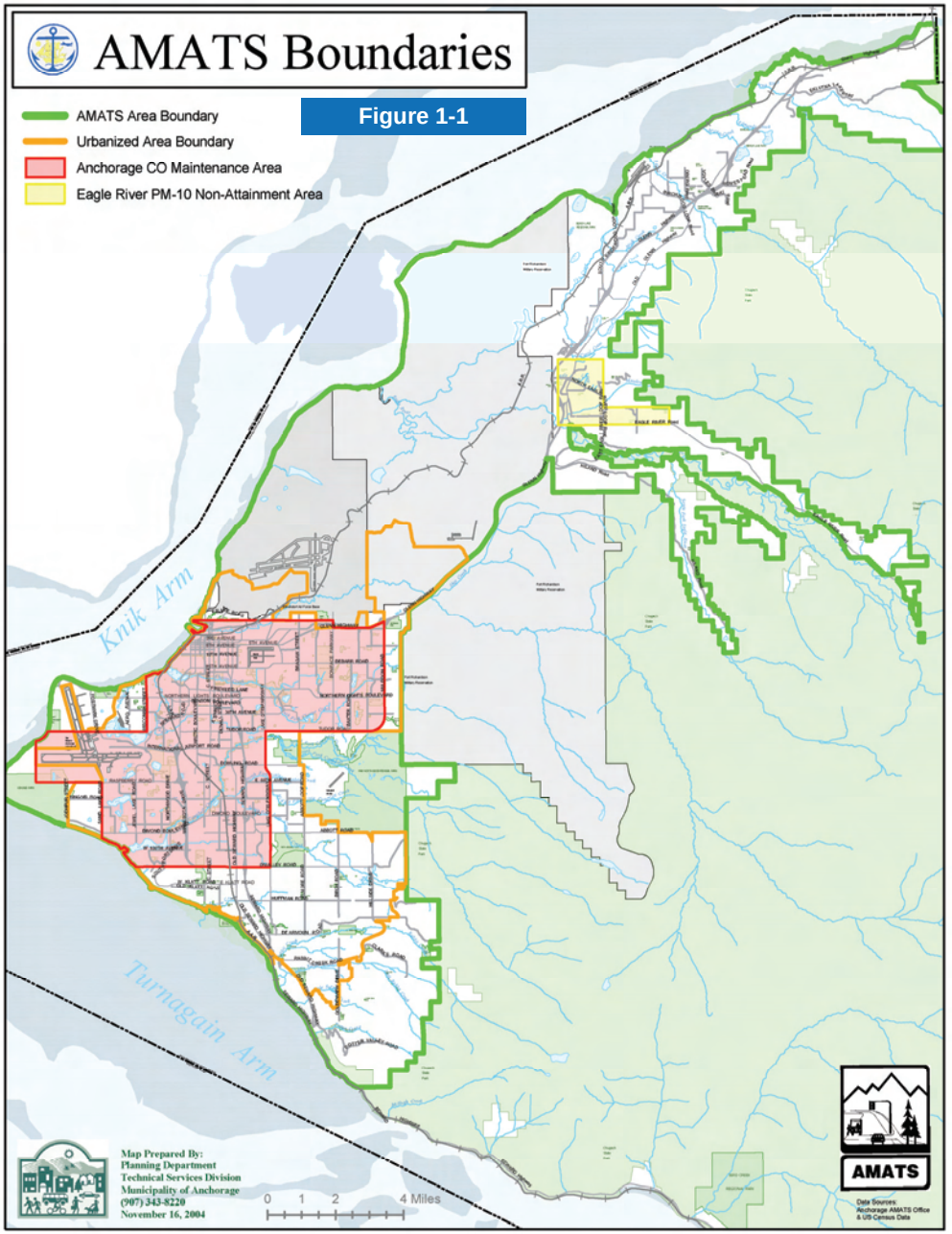
What is in the long-range transportation plan?

- Forecasts of population, households, and employment anticipated in 2025
- Assessment of the current transportation system and identification of its problems
- Evaluation of needs and opportunities for transportation elements:
  - Roads
  - Regional connections—air, rail, port, and highway
  - Freight distribution
  - Congestion management
  - Transit system
  - Nonmotorized transportation (pedestrians and bicycle system)
- Funding sources
- Priorities for policies, projects, and actions

The Municipality of Anchorage (MOA) and the Alaska Department of Transportation and Public Facilities (DOT&PF) have sponsored this 20-year LRTP for Anchorage. The plan charts a roadmap for multimodal improvements and provides a blueprint for transportation investment decisions. The LRTP will guide and shape transportation in Anchorage for decades; it will be a decisive element for achieving Anchorage 2020 goals.

What area does the LRTP focus on?

The MOA contains nearly 40 percent of the entire State of Alaska population. Figure 1-1 shows the shape and extent of the area covered by the Anchorage Metropolitan Area Transportation Solutions (AMATS). The Anchorage LRTP covers the Anchorage Bowl, the northern communities are covered in the *Chugiak- Eagle River Long-Range Transportation Plan* (Municipality of Anchorage, Traffic Department and AMATS, 2003).



CO = carbon monoxide; PM-10 = particulate matter of less than 10 micrometers in diameter

In Step with the Anchorage 2020 Comprehensive Plan

Anchorage 2020 has set a clear vision and new direction to guide future growth and development in Anchorage. Because safe, efficient movement of people and goods is a prerequisite for many of the Anchorage 2020 goals, transportation is a fundamental and vital element of the comprehensive plan. The service performance of the transportation system directly affects neighborhoods, economic vitality of business districts, and mobility and quality of life for all segments of the community. Transportation is necessary to provide access to activities, places, and opportunities across the urban landscape … but transportation and community development must be in harmony to mutually reinforce and complement each element. TransVision 2025, the public involvement process for the LRTP, is a powerful agent in the effort to achieve the vision and goals in Anchorage 2020. Chapter 3 provides details about the transportation goals and objectives developed by the public in step with the vision and guidance for development described in the comprehensive plan.

Why is this LRTP important?

By 2025, when the Anchorage Bowl population is expected to have increased to more than 300,000 residents, the available and developable land will be substantially occupied. Already redevelopment of underutilized properties has begun. Nearly 500,000 people will reside in the Southcentral region consisting of Anchorage and the Matanuska-Susitna (Mat-Su) Valley. The interaction between the Anchorage Bowl and the remainder of the region will be far greater than it is today.

Population growth in Chugiak- Eagle River and Mat-Su areas will have roughly tripled the growth in the Anchorage Bowl. Travel between these communities and the Anchorage Bowl will surge.

Anchorage households will expend in excess of $20 billion for transportation during the next 20 years. Meanwhile, about $2 billion will be invested in transportation by local, state, and federal agencies. These sums are very large; judicious and effective allocation of these transportation dollars will dramatically affect the character and quality of life of the community.

By 2003 the MOA population had reached 270,000, having grown steadily from 30,500 people in 1950 and 144,000 people in 1972, when the first Anchorage LRTP was prepared. Implementation of transportation infrastructure improvements, though, has lagged urban growth, and portions of the 1972 plan remain to be constructed. Consequently, population growth and corresponding travel demand have far outstripped transportation capacity additions.

Many points of stress are visible in the Anchorage transportation system. Automobile traffic is a growing concern. Congestion on the Glenn Highway has worsened steadily as the Mat-Su Borough and Chugiak- Eagle River have claimed larger shares of regional growth. Fifty-five percent of the MOA's major intersections currently operate at unacceptable service levels. Traffic regularly piles up at intersections such as Tudor Road and Lake Otis Parkway, along the Seward Highway between Fireweed Lane and 36th Avenue, and elsewhere in the city. More than 7,700 traffic crashes occur annually in the MOA.

Transit service per capita has declined steadily since the 1980s. Transit is currently accessible to only about three-quarters of the city's population. Funding limits the extent of transit service available to the community. Although air travel and the movement of goods to and from the airport and port are critical to the state and Anchorage economies, neither the airport nor the port is accessible by roads specifically designed for access to such distribution hubs.

Anchorage is at a critical decision point. Serious deficiencies and increasing degradation of the transportation system are visible; they will steadily worsen and become more severe in the absence of actions to address them. The blueprint outlined in this LRTP addresses these issues.

Meeting Requirements for Transportation Planning

Entities Responsible

Like any well-managed government entity, the MOA needs a fiscal plan and priorities for its transportation infrastructure. Federal funds contribute a large share of the financial resources for transportation improvements. With that funding comes a responsibility for meeting certain requirements. Federal regulations guide transportation planning, as well as monitoring and maintenance requirements for air quality standards. Preparation of the LRTP is a requirement for compliance with federal regulations and funding eligibility.

AMATS is the federally designated metropolitan planning organization responsible for transportation planning for the Anchorage Bowl, Eagle River, and Chugiak, including preparation of the LRTP. Two AMATS committees play key roles in transportation planning: the Technical Advisory Committee and the Policy Committee. The Technical Advisory Committee assesses technical data gathered and provides recommendations to the Policy Committee. The responsibilities of the Policy Committee include acting on matters related to the expenditure of federal transportation funds for the MOA, establishing the needs and priorities of transportation, and ensuring that public involvement occurs throughout the transportation planning process. (To learn more about AMATS, visit the Web site at http://www.muni.org/transplan.)

Sources of Information for Transportation Planning

The statistics in this chapter are supported by socioeconomic information from the 2000 U.S. Census, demographic and economic forecasts prepared by the Institute of Social and Economic Research in 2003 and 2004, and results of the Anchorage Household Travel Survey conducted by the MOA in 2002. These up-to-date statistical and behavioral resources provide a sound, quantitative understanding of the demographic and economic composition of the community and the daily travel needs and patterns of its residents. From this information base, a new Anchorage travel forecasting model has been constructed and used to project future travel relationships and trip-making based on Alaska's economic forecasts and Anchorage 2020.

The Municipal Planning and Zoning Commission and the Assembly advise the AMATS committees on transportation policy decisions, and Assembly approval of the LRTP is required.

Regulatory Commitments

Consistency with the National Transportation Program

The Transportation Equity Act for the 21st Century and the Aviation Investment and Reform Act for the 21st Century are significant federal legislation components that must be reauthorized for fiscal year 2004 and beyond. The reauthorization of these acts sets the course for highway infrastructure, highway safety, truck safety, public transit, and aviation programs for the remainder of this decade.

The Anchorage LRTP, which meets the long-range transportation planning requirements that enable the MOA to remain in compliance with federal regulations, has been prepared concurrently with reauthorization of the U.S. transportation program and funding. It is consistent with new elements of the national transportation program, addresses priority issues, and leverages funding opportunities and initiatives incorporated in the national program.

Air Quality

Federal funding for local transportation projects is statutorily tied to achieving and maintaining minimum National Ambient Air Quality Standards. AMATS must demonstrate that the LRTP will not undermine the local efforts to achieve air quality standards. This process is known as an air quality conformity determination.

Environmental Justice

The U.S. Department of Transportation has issued a final order on Environmental Justice. This final order requires that metropolitan planning organizations, like AMATS, identify and address disproportionately high and adverse public health and environmental effects of transportation policies, programs, and activities on minority and low-income populations. See Appendix B.

Anchorage Metropolitan Area Transportation Solutions (AMATS)

The MOA fulfills its roles as the recognized Metropolitan Planning Organization (MPO) and the Air Quality Planning Agency for the Anchorage Maintenance Area through the Anchorage Metropolitan Area Transportation Solutions (AMATS). Five primary groups participate in AMATS planning and decision-making activities:

- AMATS Policy Committee
- AMATS Technical Advisory Committee
- Citizens' Air Quality Advisory Committee
- MOA Planning and Zoning Commission
- Municipal Assembly

The **Policy Committee** has the authority to act on all matters relating to the continuing, comprehensive, and cooperative transportation and air quality planning process for the area. The committee consists of five equal voting members: Commissioner of the DOT&PF or a designee, Commissioner of the Alaska Department of Environmental Conservation or a designee, Municipal Mayor, and two Municipal Assembly Members. The Chair of the Policy Committee is the DOT&PF member. Responsibilities of the AMATS Policy Committee are as follows**:**

- Establish the needs and priorities of transportation
- Direct the preparation and implementation of transportation plans, programs, and studies
- Manage and secure funding to implement the Transportation Improvement Program (TIP)
- Provide overall direction to the AMATS Technical Advisory Committee and staff
- Ensure public involvement throughout the AMATS planning and decision-making process

The AMATS **Technical Advisory Committee** consists of these members: (1) DOT&PF Central Region Chief of Planning, (2) representative from the Alaska Department of Environmental Conservation, (3) Municipal Planning Department Director, (4) Municipal Traffic Department Director, (5) Municipal Public Transportation Director, 6) representative from the Municipal Department of Health and Human Services, (7) a member of the Citizens' Air Quality Advisory Committee, (8) MOA Project Management & Engineering Director, (9) representative from the Port of Anchorage, (10) DOT&PF Regional Pre-Construction Engineer, and (11) representative from the Alaska Railroad Corporation. The Chair of the Technical Advisory Committee is the Municipal Traffic Director. The committee duties include the following:

- Prepare and maintain the AMATS transportation plans, technical studies, and programs
- Provide recommendations to the Policy Committee about the effects of transportation and air quality plans and programs on the plans of other agencies
- Provide recommendations to the Policy Committee in its review of transportation projects and programs funded by the state and federal governments
- Receive public comments through the MOA Planning and Zoning Commission (acting as the AMATS Citizens' Advisory Committee) and the AMATS Citizens' Air Quality Advisory Committee

The AMATS **Air Quality Advisory Committee** is the citizens' forum for air quality issues affecting AMATS. Specific functions of this committee are to assist in promoting public participation in the air quality planning process and to comment on air quality planning issues. Members of this committee are appointed by the AMATS Policy Committee. Department of Health and Human Services is the coordinating agency for the Air Quality Advisory Committee. The committee duties are as follows:

- Provide review and comment on air quality planning issues
- Assist in promoting public participation in the air quality planning process

In its capacity as the AMATS Citizen's Advisory Committee, the **Planning and Zoning Commission** reviews transportation plans and programs. In another capacity, the Planning and Zoning Commission, whose members are appointed by the Mayor, reviews site selections and site plans for roadway improvement projects. Responsibilities of the Planning and Zoning Commission are identified below:

- Review transportation plans and programs and prepare recommendations to both the Municipal Assembly and the AMATS Policy Committee
- Review and prepare recommendations on the elements of the Comprehensive Plan and the Official Streets and Highways Plan to the Anchorage Assembly for Adoption
- Advise and make recommendations to the AMATS Technical Advisory Committee and Municipal Assembly

The **Municipal Assembly** provides local government review and recommendations on the AMATS plans and programs to the AMATS Policy Committee. The Municipal Assembly's duties are as follows:

- Adopt by resolution the LRTP as the Transportation Plan element of the Comprehensive Plan
- Adopt by resolution the TIP
- Adopt the transportation element of the Anchorage Comprehensive Plan
- Adopt an official streets and highways plan
- Adopt the local area component of the State Implementation Plan for Air Quality
- Assist in securing adequate funding to implement the transportation program
- Designate two of the three local government representatives on the AMATS Policy Committee

First Steps for a New Future

This plan is a major and important first step. It identifies transportation improvements and investments to meet the needs of Anchorage in 2025. Two important steps were necessary to identify those future needs: (1) characterizing the current transportation system, especially what factors most strongly influence the status quo; and (2) projecting the demands that will be placed on the transportation system in 2025.

Key pieces of the puzzle are future land use development and locations of new households and employment—where the growing number of Anchorage residents will live and where Anchorage workers, as well as commuters from the Mat-Su Borough, will travel to jobs. Another clue to future demand is understanding the patterns and types of trips into, within, and out of the study area.

CHAPTER 2. Community Involvement

TransVision

The desire of the community to preserve the natural and physical attributes that characterize Anchorage is strong. Safe and effective management of transportation within, into, and out of our boundaries is recognized as a major issue affecting quality of life, particularly in light of continued local and regional population growth.

The community responded to the challenge of shaping future transportation by joining in a community involvement process named **TransVision**. Through a proactive public involvement process, Anchorage residents contributed in a dedicated, vocal, and active manner to the development of this LRTP. TransVision provided complete, informed, and timely public notice and full public access to key decisions. It also supported early and continuing community involvement.

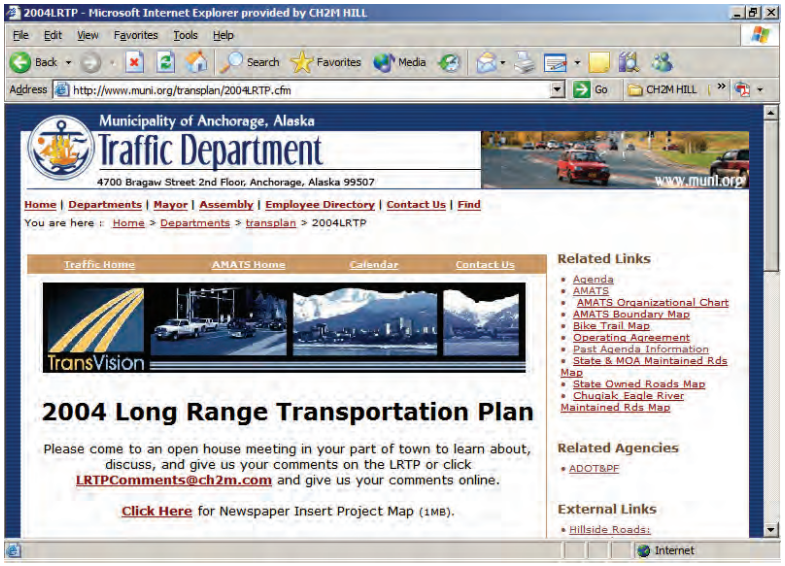
TransVision Shaped the LRTP

TransVision actively solicited and incorporated input from residents, the business community, civic leaders, and government partners to ensure that policies, projects, candidate improvement scenarios, and recommended actions would serve all transportation stakeholders to the greatest extent possible.

The LRTP shaped by TransVision recognizes the diversity of the region's transportation needs and attempts to balance often-competing needs. It also addresses issues of growth and preservation of the natural environment. Development of the LRTP focused on how land use and transportation choices achieve the community vision outlined in the Anchorage 2020 comprehensive plan (2001), including a healthy environment and economy, livable neighborhoods, and mobility options.

Issues and considerations conveyed to the public for input during development of the LRTP included the following:

- Addressing projected east-west transportation system stress across the Anchorage Bowl
- Improving public transportation, bicycle, and pedestrian travel choices
- Managing the effects of huge traffic volumes from the Mat-Su Borough on the Glenn and Seward highways and on city streets
- Effectively integrating multimodal transportation elements that sustain and enhance economic vitality
- Maintaining safe and satisfactory service standards through cost-effective roadway improvements



- Blending community and transportation planning to achieve more attractive neighborhoods and livable communities
- Preserving and maintaining the existing transportation infrastructure
- Identifying policies and funding sources capable of sustaining and building facilities
- Investing in transportation system management technologies and systems

TransVision Components

Broadly disseminating information and obtaining community-wide public input through a proactive process of engaging the public genuinely shaped development of the LRTP. Major public participation elements are described below, and a complete Public Involvement Activity Log is available on the website (www.muni.org/transplan).

Transportation Forum

In September 2003, a meeting in the heart of downtown, at the Performing Arts Center, served to kick off the public process and provide early public involvement. The TransVision Forum brought together the community, 16 transportation exhibitors, keynote speakers, the Mayor of Anchorage, transportation experts, and print and television media for an open conversation about long-range transportation issues and the future of Anchorage and the region.

Roundtable Committee

Members of a 40-person citizen Roundtable Committee drawn from a broad cross section of the Anchorage community; academic, environmental, youth, institutional, and interest groups; and business leaders were appointed by Mayor Mark Begich and the DOT&PF Regional Director. This group met on more than a dozen occasions in extended committee and subcommittee meetings. The Roundtable Committee provided guidance and counsel throughout the TransVision process, addressing transportation system issues, articulating goals and objectives, assessing alternative scenarios, and providing recommendations. The Roundtable Committee was charged with communicating the information received to their community constituents and gaining constituent input on the transportation issues identified. A complete list of Roundtable Committee members is available on the website.

Stakeholder Interviews

Formal and informal stakeholder interviews were used to assist the TransVision team in compiling a comprehensive list of transportation-related issues. Issues were categorized into groups to form a foundation for developing transportation strategies. The stakeholders interviewed included community organizations and special interests: neighborhood groups, AMATS, public transportation, business, economic development, trucking, information technology systems, DOT&PF, the military, resource agencies, Port of Anchorage, Ted Stevens Anchorage International Airport (TSAIA), Alaska Railroad Corporation, emergency responders, Tribal groups, University of Alaska, MOA staff, design professionals, and bike and pedestrian advocates.

Technical Oversight Committee

Members of the Technical Oversight Committee were charged with ensuring that sound technical procedures, best-practice travel modeling and up-to-date analytical tools were applied. This team of engineers, planners, community members, national transportation representatives, and air quality professionals provided technical and methodological review. The committee also examined background data, transportation model output and processing of the model output, and information technology system deployment. In addition, the Technical Oversight Committee commented on the peer review summary of the Anchorage Travel Model.

The two-day Peer Review was held through the Transportation Model Improvement Program sponsored by the Federal Highway Administration and included panelists from Arizona, Oregon, and Colorado Metropolitan Areas. A complete list of Technical Oversight Committee members is available on the website.

Photo courtesy of Brooks & Associates

Community Councils

TransVision planners met with the Anchorage Federation of Community Councils and presented information to individual community and neighborhood organizations. These community forums updated the community regularly on the progress of LRTP development and solicited input.

Open House Meetings

The Transportation Forum public meeting in September 2003 began the open house public discussion. The next open house meeting was held in April 2004 to report to the community the findings from evaluating the performance status of the current transportation system. Participants also were again asked questions to determine public sentiment about the tradeoffs and priorities to meet current and future transportation needs.

Additionally, in April and May of 2005, five open-house meetings were held in four quadrants of the city and one in Chugiak- Eagle River. The meetings focused on seven main transportation issues: building a highway-to-highway connection, creating better transit service, strengthening our road network, easing the Glenn Highway commute, making it easier to walk and bike around the city, using our system more wisely, and living up to the Anchorage 2020 comprehensive plan. The open houses provided opportunities to comment on potential transportation strategies and preliminary recommendations. Team members, MOA staff, and

Photo courtesy of Brooks & Associates

DOT&PF staff were on hand to discuss the issues and to solicit and collect comments.

An ongoing TransVision practice of speaking to community gatherings and to business and professional organizations was enhanced through dedicated outreach. Presentations to more than 40 community groups solicited input before the Draft LRTP public release.

All meetings, including Roundtable Committee and Technical Oversight Committee meetings, were open to the public.

Focus Groups

Focus groups were formed to study and receive input on specific topics, including freight, land use, transit, bike and pedestrian issues, and trails. Industry representatives, local users and officials, and interested Roundtable Committee and Technical Oversight Committee members participated in the meetings focusing on the specific

issues, impacts, costs, integration of different modes of transportation, and land use.

Electronic Communication

Throughout the LRTP development, a hotline providing information and recording comments has been available. The hotline was updated periodically to announce current meeting times and locations. The AMATS website was also updated periodically to announce meeting opportunities and provide project documents as they became available. Both forms of communication allowed members of the public who were unable to attend meetings or presentations to keep abreast of the progress and submit comments. E-mail was used to alert members of organizations and public contacts about upcoming participation activities and to widely share project information.

Media Distribution

Media campaigns publicized upcoming opportunities for public participation. Paid radio and newspaper advertising, as well as public service announcements from major local media outlets, broadcasted notifications to inform the public of the process and upcoming events. More than 50,000 copies of *Saving Anchorage from Gridlock*, a publication that outlined major transportation issues and solutions, were distributed across the Anchorage area as an insert in the *Anchorage Daily News*. The insert also advertised the date, time, and location of the five open houses hosted in April and May 2005. In addition, 4,000 copies of this publication were distributed to public locations and community meetings, and on People Mover buses.

Radio, television, and print media interviewed many members of the team developing this LRTP and Roundtable Committee members in live and recorded interviews and statements about TransVision components, specific issues, and LRTP progress.

Reaching Out to the Underserved

The youth voice represents the future end users of the transportation system in 2025. Elementary students were interviewed about their views on transportation topics from our bike trails to traffic jams. Their ideas and perspectives were shared in a video presentation at the TransVision Forum and at a subsequent Roundtable Committee meeting. In addition, a 2-hour session with representatives from Anchorage high school government leadership and a project representative collected input from the students on the future of Anchorage transportation. The Roundtable Committee also included a youth representative who actively participated throughout the process.

Minority population outreach was accomplished in conjunction with the DOT&PF Office of Civil Rights through a direct mail campaign to their resource list of more than 100 minority organizations, churches, and businesses throughout the Anchorage area. Concerted attempts were made to actively engage residents of traditionally underserved areas—Fairview, for example— to ensure that the concerns and comments of these individuals were heard. To listen to and meet with residents, project staff attended many community council meetings in the target neighborhoods at each stage of the planning process.

Policymaker Participation

Updates and work sessions involved Mayor Begich, the Anchorage Assembly, the AMATS Policy Committee, and the MOA Planning and Zoning organization as well as other local, state, and federal transportation officials. The active involvement of these policymakers served to provide informed communications to their constituencies as well as returning vital feedback to the project team.

Summary

The extensive public outreach described in this chapter was undertaken with one goal in mind—to make better decisions about the future of transportation in Anchorage. The input from our community has resulted in not only viable technical solutions, but livable, credible, responsive solutions for all of Anchorage.

CHAPTER 3. Goals and Objectives

Introduction

Anchorage 2020: Anchorage Bowl Comprehensive Plan (Anchorage 2020), the Anchorage Bowl comprehensive plan, guides community planning by providing a framework for decisions about land use and transportation. It also provides direction for public facilities, economic development, housing, and other public issues that are vital to a healthy and livable community. Anchorage 2020 is a public declaration of a general vision for the city's future that was articulated by Anchorage citizens (during a 5-year-long process) and adopted by the Anchorage Assembly in February 2001.

The Anchorage 2020 vision "balances growth with the retention of the city's natural features and quality of life." The plan recognizes that the biggest challenges facing the community is "meeting future demands for housing, commercial development, public open space, roads, and public facilities with a dwindling land supply and limited public funds."

The Anchorage 2020 goal statements, which articulate the desires of the community for the future, provide guidance for the LRTP process. This chapter reviews the comprehensive plan goals and presents the specific transportation-related goals of the LRTP. These goals have been identified to guide decisions about transportation improvements that are consistent with Anchorage 2020.

Several sidebar boxes on the following pages present information about relevant components of Anchorage 2020 and how they pertain to development of the LRTP.

How Does Anchorage 2020 Address Transportation Improvements?

Anchorage 2020 focuses primarily on land use planning and development issues related to land use. In recognition that land use and transportation are intertwined, the comprehensive plan also provides guidance on making transportation improvements. People use some form of transportation to travel between land uses—where they live, work, shop, conduct business, and recreate. Land uses that are far apart have a different impact on the transportation network (and vice versa) than those that are located close together. Anchorage 2020 identifies the following policy principles to guide transportation development:

- Transportation improvements are balanced among transit, pedestrian, and road improvements.
- Improvements are made to selected east-west and north-south arterials.
- Transit frequency is increased and routes are expanded.
- Transit-supportive development corridors, pedestrian-accessible developments, and multimodal roadways and trail networks are promoted.
- Freight movement is facilitated throughout the community, especially between the port, international airport, railroad, and industrial reserves.
- Streetscape standards revitalize road corridors for all users.
- Commuter rail and intermodal transit services tie Anchorage to outlying communities.
- Neighborhood through-traffic movements are minimized.

Anchorage 2020 Goals: A Framework for Guiding Development

Anchorage 2020 goal statements that express the community's aspirations for growth and development are grouped by topics. The goals excerpted below provide important guidance for planning long-range transportation development.

Transportation and Land Use Goals (pages 37-38)

Residential Uses: A variety of housing types and densities in safe, attractive neighborhoods that offer a choice of urban, suburban, and rural lifestyles that are appropriate for northern conditions and are in harmony with our natural setting.

Commercial, Industrial, Institutional, and Transportation Uses: A balanced supply of commercial, industrial, institutional, and transportation land uses that is compatible with adjacent land uses and has good access to transportation networks.

Mobility and Access: A transportation system, based on land use, that moves people and goods safely, conveniently, and economically, with minimal adverse impact on the community.

Transportation Choices: An efficient transportation system that offers affordable, viable choices among various modes of travel that serve all parts of the community.

General Land Use Issues: A forward-looking approach to community growth and redevelopment.

Design and Environment Goals (pages 38-39)

Neighborhood Identity and Vitality: A variety of safe, pleasant, and distinctive neighborhoods responsive to the diverse needs of residents, with good access to schools, recreation, natural areas, and community facilities.

Transportation Design and Maintenance: A safe, energy-efficient transportation system that is designed and maintained for year-round use and that respects the integrity of Anchorage's natural and built northern environment.

Economic Viability: A built environment based on design standards that sustain long-term economic viability and growth and that promote affordable residential, commercial, and industrial development.

Air Quality: Clear healthful air that is free of noxious odors and pollutants.

Public Services and Improvements Goals (page 38)

Community Facilities: A well-planned mix of public and institutional facilities that meets the health, education, governmental, and social needs of all citizens.

Parks, Trails, and Recreation: A sustainable and accessible system of recreation facilities, parks, trails, and open spaces that meets year-round neighborhood and community-wide needs.

Arts and Culture: A community that encourages arts and cultural activities as a catalyst for education, communication, economic development, and social progress.

General Goals (page 41)

Civic Involvement: A civic community that encourages public involvement in decision-making.

Natural Hazards: Coordinated and proactive public policies, emergency plans and procedures, and educational programs that minimize the risk to the community from natural hazards and disasters.

Safety: A community where people and property are safe.

Land Use Concepts Shape Future Growth

The Figure 3-1 map showing Anchorage 2020 land use areas depicts planned changes to land use policy. Key features are highlighted in the text below.

Major Employment Centers. These areas will become the focus for the highest concentration of office employment in the city, increasing employment density and enhancing people's ability to walk or to take public transportation to their work destinations.

Redevelopment/Mixed Use Areas. Redevelopment of underused parcels and development that fills vacant parcels will create pedestrian-oriented residential and mixed-use development that supports major employment centers.

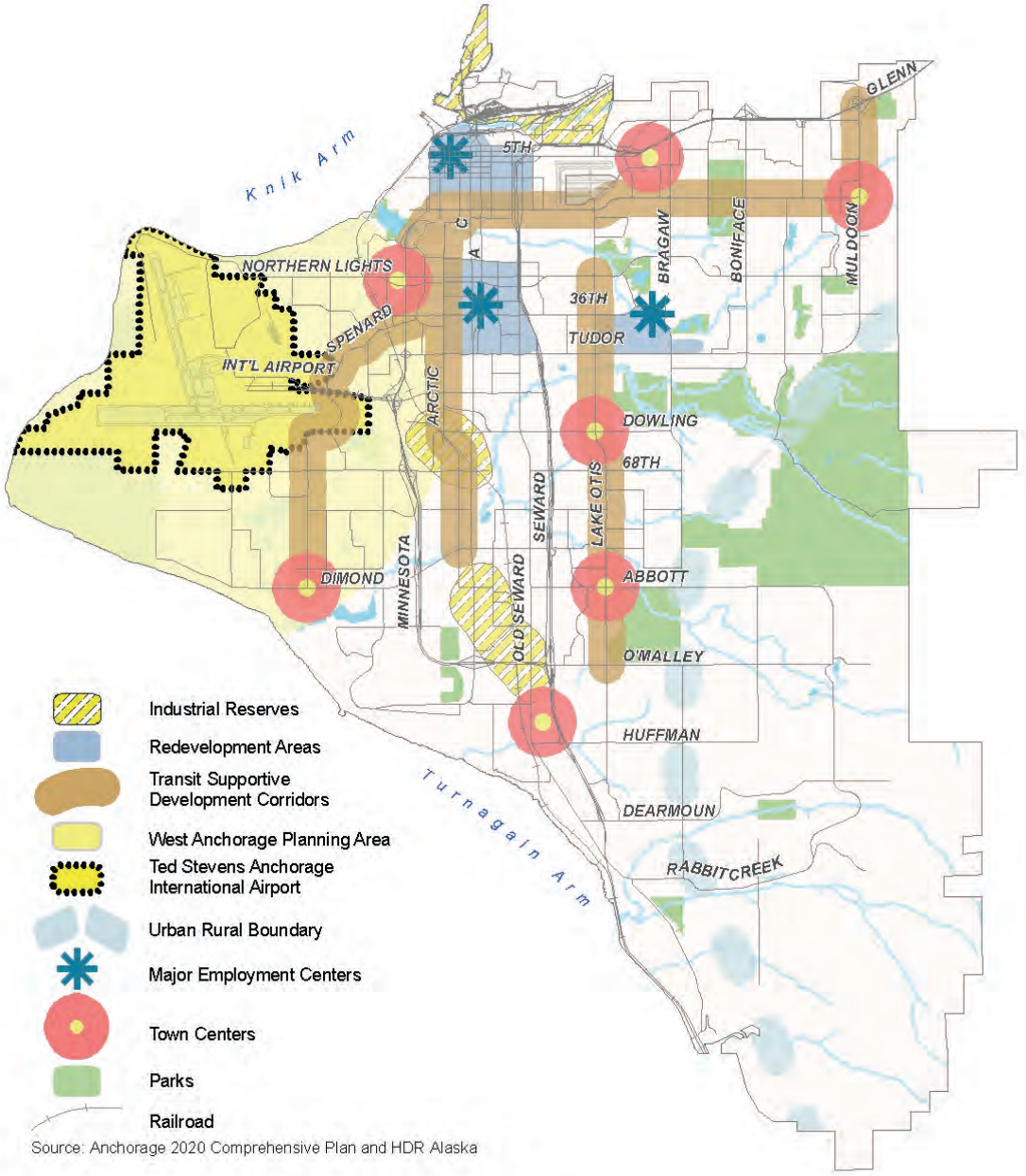
Transit-Supportive Development Corridors. Higher-density housing and pedestrian-friendly streets will be coupled with increased transit service.

Town Centers. These areas will consist of a mix of retail shopping, services, public facilities, and medium- to high-density residential uses.

Industrial Reserves. Definition of these areas will ensure that strategically located industrial land is primarily used for industrial purposes.

Urban-Rural Conceptual Boundary. This line defines the conceptual boundary or location that separates the urban and rural service area and related development policies.

Figure 3-1. Land Use Policies from Anchorage 2020



Source: Anchorage 2020 Comprehensive Plan and HDR Alaska

Anchorage 2020 Community Vision

Anchorage is . . .

A diverse, compassionate community where each individual is valued, and children, families, and friendships flourish.

A northern community built in harmony with our natural resources and majestic setting.

A thriving, sustainable, broad-based economy supported by an efficient urban infrastructure.

A safe and healthy place to live where daily life is enriched by a wealth of year-round recreational and educational opportunities.

A caring, responsive government that is accessible and equitable for all its citizens.

An active learning community with abundant cultural amenities.

—Anchorage 2020, page 37

Goals Guiding LRTP Development

The LRTP Roundtable Committee, a citizen advisory committee (discussed in Chapter 2), created the following overarching goal to guide development of the LRTP:

> *Develop a balanced multi-modal transportation system based on Anchorage 2020 guidance (goals, polices, strategies, and maps) that serves as a catalyst to enhance the quality of life enjoyed by the current and future residents of Anchorage.*

To achieve the overarching goal, the committee members also defined specific goal statements and objectives. The discussion below provides goals, objectives, and details about how each goal is relevant to Anchorage 2020 guidance.

Goal 1: Safety and Health

> *Provide a transportation system that moves people and goods safely throughout the Municipality.*

Objectives

- Improve the safety and security of people on all modes and in all areas.
- Reduce vehicular and pedestrian crashes.
- Decrease emergency response time and reduce risk to the community from natural hazards and disasters.
- Promote a walkable city with safe winter walking conditions.
- Minimize conflicts between freight and passenger/pedestrian travel.
- Minimize exposure to transportation-related air pollutants, including carbon monoxide, particulate matter, and volatile organic compounds such as benzene.

How does Goal 1 help implement Anchorage 2020?

Goal 1 relates to the comprehensive plan goal of "public facilities . . . that meet the heath needs . . . of all citizens." It emphasizes safe travel, reducing the physical, social, and economic costs of traffic crashes, making travel on all modes secure and safe at all times, and particularly protecting people on foot.

Photo courtesy of HDR Alaska, Inc.

Congestion, like this on the Glenn Highway near Merrill Field, compromises mobility for everyone—from cars and buses in the traffic to emergency response vehicles trying to get through.

Goal 1 also helps realize the comprehensive plan's general vision for "a community where people and property are safe." It recognizes that safe environments around schools and enabling emergency responders to achieve quicker response are important. The Fire Department is quick to point out that if traffic is stopped, the fire truck moves no faster than the car sitting next to it.

Goal 1 speaks to broader community health issues such as protecting our air quality by controlling vehicle emissions and making Anchorage a more walkable community. A community that is more physically active is healthier. Improving facilities and providing better connectivity and easier access will accommodate nonmotorized travel by bicycle and on foot, whether on a sidewalk after dinner, to a bus stop on a morning commute, or on a trail to an adjacent neighborhood.

Goal 2: Build, Operate, and Maintain Quality, Affordable, and Attractive Improvements

Develop an attractive and efficient transportation network that takes into account the cost of building, operating, and maintaining a system that considers the equity of all users, and the secondary costs associated with all other community values.

Objectives

- Prioritize the projects within the LRTP to optimize the overall capital costs associated with each project.
- Consider the life-cycle costs associated with operating and maintaining the projects within the LRTP.
- Optimize the travel choices within the transportation system to maximize the associated benefits for all users while minimizing the costs to taxpayers.
- Balance the project purpose with aesthetic considerations.
- Match street and highway design to the use and character of the road, recognizing that character may vary from primarily commercial to primarily residential.

How does Goal 2 help implement Anchorage 2020?

Goal 2 expresses the community desire for visually attractive and fiscally responsible improvements. It states that transportation facilities should be community assets. The goal draws from the Anchorage 2020 mandate for improvements that are "well-planned"—with all costs (such as pedestrian amenities, operation and maintenance costs, and impacts to communities) considered upfront—and that "sustain long-term economic viability and growth." This goal also helps implement the comprehensive plan call for balanced transportation improvements by directing transportation planners to consider issues like equity, sustainability, and secondary costs—evaluation criteria sometimes overlooked when assessing improvements.

Photo courtesy of HDR Alaska, Inc.

To encourage winter use of the pedestrian and transit system that promotes year-round travel choices, snow maintenance on sidewalks and around bus stops must be improved.

Goal 3: Economic Vitality

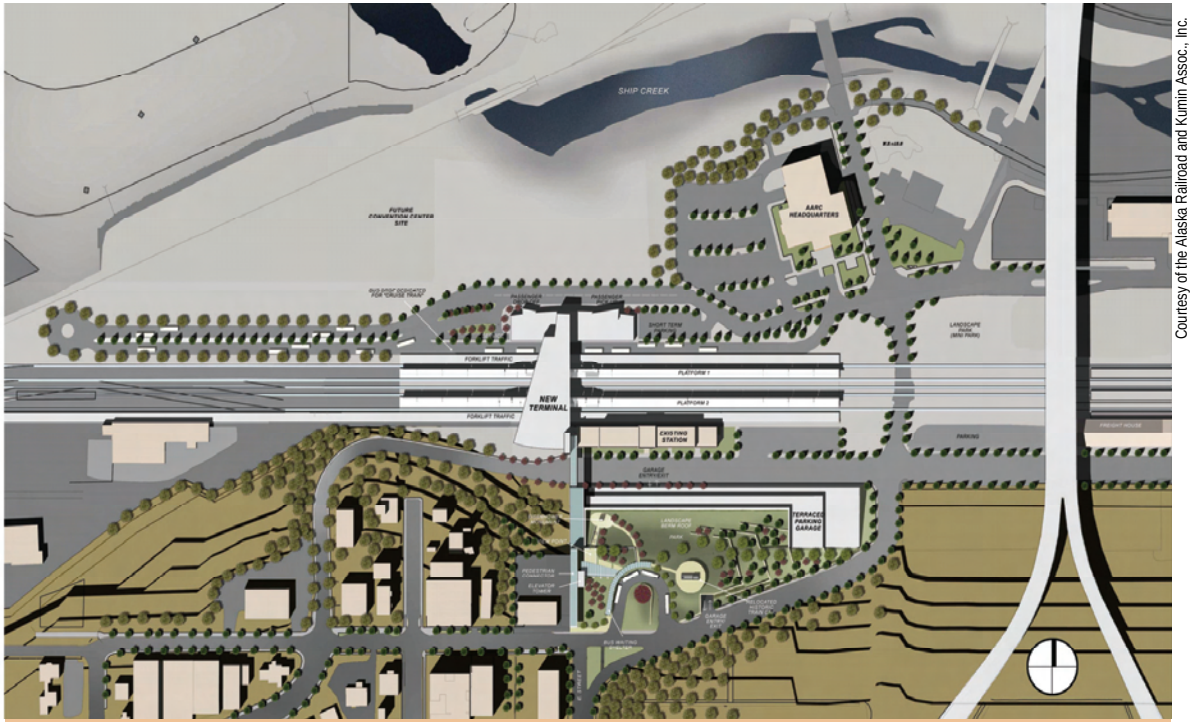
A transportation system that supports a thriving, sustainable, broad-based economy for Anchorage by locating and using transportation infrastructure and facilities to enhance community development.

Objectives

- Optimize the transportation system to meet the needs of the Port of Anchorage, Ted Stevens Anchorage International Airport, the Alaska Railroad, and the military and business communities.

How does Goal 3 help implement Anchorage 2020?

Goal 3 relates the importance of transportation to economic vitality. It acknowledges that the transportation system affects all sectors of the economy and that congestion has negative impacts on individuals, businesses, freight movements, and the municipality. This goal seeks to provide a transportation system that enhances community development as well as contributes to healthy municipal and statewide economic activity.



Courtesy of the Alaska Railroad and Kumin Assoc., Inc.

The Alaska Railroad Corporation's plan for an intermodal facility at Ship Creek is an excellent example of the comprehensive plan's vision for the integration of land use and transportation. A new terminal will accommodate rail traffic to and from the airport and the Mat-Su Borough, and an enclosed sky bridge will help pedestrians connect to the downtown area and their destinations.

Goal 4: Optimize Community Connectivity

Establish community connectivity with safe, convenient, year-round auto and non-auto travel routes within and between neighborhoods, commercial centers, and public facilities.

Objectives

- Promote the even distribution of traffic loads between streets by enhancing the existing grid pattern of streets.
- Establish an adequate number of access points from subdivisions to adjacent higher order streets.
- Enhance the physical connectivity between neighborhoods by increasing the number of roadway and pedestrian connections.

Photo courtesy of Municipality of Anchorage

This multi-use building—housing shops, offices, and residences—in Downtown meets the goals of Anchorage 2020.

Photo courtesy of HDR Alaska, Inc.

Missing and discontinuous sidewalks demonstrate the need for improved connections.

- Improve safe and convenient connectivity from schools to neighborhoods, parks, and other recreational and commercial areas by use of bike trails, pedestrian trails, sidewalks, and transit.

How does Goal 4 help implement Anchorage 2020?

The comprehensive plan notes the importance of having good access to all types of land use (residential, commercial, industrial, institutional), as well as to schools, recreation and natural areas, and community facilities. It also stresses the need for solutions to balance the roles of neighborhoods, schools, and recreation areas as both transportation destinations and valued community elements.

The focus of Goal 4—connectivity—helps implement this vision by encouraging transportation connections that support community values, health, and safety. This goal also works to reduce Anchorage's dependency on automobile travel by emphasizing the connectivity of sidewalks, bike trails, and pedestrian trails to link community travel destinations.

Goal 5: Improve Mobility and Access in Anchorage and the Region

Improve access to goods, jobs, services, housing, and other destinations. Provide mobility for people and goods throughout the region in a safe, affordable, efficient, and convenient manner.

Objectives

- Develop mechanisms for improving regional cooperation and planning to address important transportation issues.
- Reduce the vehicle miles traveled (VMT) per capita.
- Increase opportunities for multi-purpose trips in planned mixed use centers.
- Promote the development of an effective roadway network through improvements in intersection and efficient roadway capacity.
- Improve the existing transportation system efficiency through the implementation of effective and innovative transportation system management (TSM), transportation demand management (TDM), and Intelligent Transportation System (ITS) strategies.

Photo courtesy of CH2M HILL

Improved pedestrian safety, efficient traffic flow, and landscaped roadways enhance livability in Anchorage.

How does Goal 5 help implement Anchorage 2020?

The focus of Goal 5 is mobility, the ability of people to move from place to place. This goal builds on the comprehensive plan's directive for a transportation system that "moves people and goods safely, conveniently, and economically." Figure 3-1 depicts key land use changes such as the development of major employment center and town center hubs that are part of land use policies from Anchorage 2020.

Goal 5 recognizes that stronger regional collaborative mechanisms will be needed to address regional travel issues and improvements. It reduces congestion and travel delay to ensure reasonable access to jobs, education, services, and other opportunities and provide efficient freight flows. Anchorage 2020 mixed-use and other development policies are leveraged to enable multi-purpose trip consolidation and encourage walking, bicycling, and non-driver mode options. Goal 5 also stresses good management and operation of our transportation systems—achieving optimum efficiency, offering travel options and incentives to reduce automobile dependency, and deploying advanced technologies to make our transportation systems work better.

Goal 6: Transportation Choices

Provide a transportation system that provides viable transportation choices among various modes.

Objectives

- Promote the development of a safe network of trails and sidewalks that provide reasonable access to work, schools, parks, services, shopping, and the natural environment, especially for those who live relatively close to areas where trails and sidewalks will actually provide opportunities for frequent and regular use by citizens.
- Improve the year-round reliability and travel time of transit without increasing automobile travel time and while assessing whether the increased costs are offset by increased ridership.
- Optimize the year-round accessibility to, and the convenience of, travel choices.

How does Goal 6 help implement Anchorage 2020?

Anchorage 2020 stresses the importance of having choices through a transportation system with mode options, one that makes travel convenient and affordable across the city and for all segments—year-round.

Goal 6 recognizes that walking, cycling, and transit options are needed, and that they must be made accessible, attractive and competitive to be viable. Goal 6 calls for transportation improvements that make traveling by other modes (by bus, bike, or foot) more convenient to transit-dependent riders and more attractive to riders who currently choose to travel by automobile.

Anchorage is a northern community, and transportation facilities must be operational year-round for them to be true travel options. Goal 3 also reflects the value that Anchorage residents place in the ability to be outdoors.

Photo courtesy of HDR Alaska, Inc.

LRTP goals specifically articulate the comprehensive plan's general commitment to transit.

Goal 7: Preserve and Enhance the Natural and Developed Environment

Design and maintain a transportation system that respects the integrity of Anchorage's natural and built environment and protects Anchorage's scenic vistas.

Objectives

- Minimize adverse impacts on the community, such as neighborhood through traffic movements.
- Preserve and improve air quality to maintain the health and welfare of Anchorage citizens.

Photo courtesy of HDR Alaska, Inc.

The mandate for fiscally responsible projects means that capital, operation, and maintenance costs must all be considered for every element of an improvement, including landscaping such as this Fairview roadside planting.

- Minimize noise and light pollution impacts.
- Minimize the impacts on the natural environment, such as water resources, fish habitat, watersheds and wetlands, and parklands.
- Design and landscape roads to maintain and enhance the attractiveness of neighborhoods, open space, and commercial corridors and centers.
- Use context-sensitive design strategies to support the development of mixed-use centers (such as town centers, employment centers, and redevelopment areas) and transit-supportive corridors with more pedestrian- and transit-oriented street environments.
- Reinforce the link between transit and land use by establishing as a priority the building of transit-friendly residential and commercial development in Downtown.

How does Goal 7 help implement Anchorage 2020?

"Minimal adverse impact on the environment," "minimal adverse impact on the community," respect for "the integrity of Anchorage's natural and built northern environment," "in harmony with our natural setting," "clear healthful air" . . . these key phrases quoted from Anchorage 2020 set the context for Goal 7. This goal is about protecting the environment and balancing transportation improvements with community values. It promotes transportation improvements that protect and enhance the air breathed, the sounds heard, and the magnificent landscape enjoyed every day.

Photo courtesy of HDR Alaska, Inc.

Both Anchorage 2020 and the LRTP stress the importance of designing transportation improvements in harmony with the natural and built environment.

Goal 7 is also about protecting neighborhoods. The importance of maintaining and improving the quality of Anchorage neighborhoods is expressed consistently throughout Anchorage 2020. The relationship between how travel is conducted and where residents live is evident in air quality issues, as well as in the effects of traffic on neighborhoods, including detractions such as cut-through vehicles and heavy traffic on arterials that surround neighborhoods. Goal 7 also states that aesthetics and visual quality matter.

CHAPTER 4. Travel in Anchorage Today

Introduction

During the past half-century, Anchorage grew from a community of 30,500 to a midsized metropolitan area of 270,000 residents. Anchorage also spread out, covering a larger urban expanse; diversified its economy with a broader mix of establishments and service; and welcomed new residents.

In 2002, a household travel survey gathered information from residents of the Anchorage Bowl and the Chugiak-Eagle River area. The survey measured the demographic composition of households, their economic characteristics, and their detailed daily trip-making behavior. It revealed that Anchorage residents made more than 980,000 individual one-way trips each weekday to move about the MOA. When visitors and Mat-Su Valley commuters are taken into account, the total number of trips on the Anchorage Bowl road network is more than 1 million each weekday.

This chapter examines the composition and characteristics of local travel and the trip-making behavior of the households and the persons who traveled. An understanding of travel behavior is a critical building block in evaluating our current transportation system and future transportation needs.

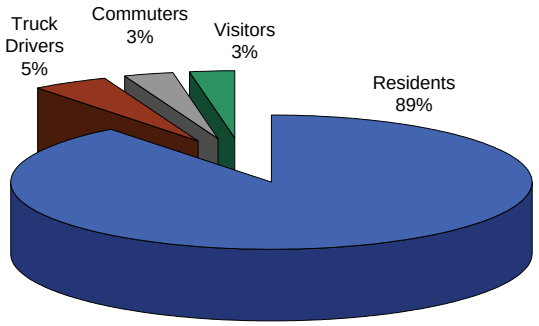
Who Travels in Anchorage

The Anchorage Household Survey measured trips made by MOA residents. Others making daily trips in the MOA are truck drivers, commuters and visitors from north and south of the MOA, and tourists and business persons temporarily in Anchorage. Figure 4-1 shows the percentages and types of travelers in Anchorage on a typical weekday in 2002.

Why People Travel

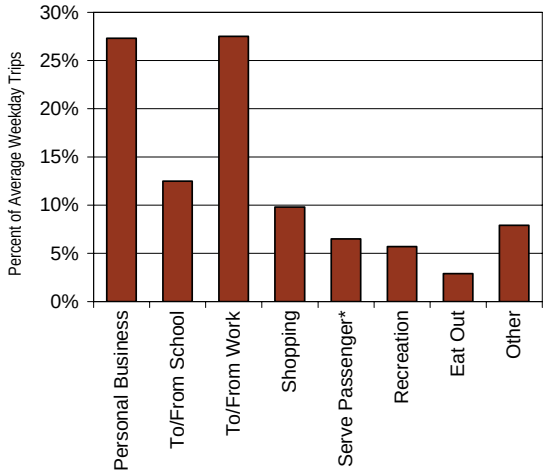
Travel is a part of the daily lives of all Anchorage residents; it takes them to work, recreation, shopping, school, and personal business destinations. It also plays an essential role in activities of the business community, service organizations and institutions, government agencies, and the military. These varied travel purposes require trips to locations distributed throughout the community. Figure 4-2 shows the percent of travel by trip purpose in Anchorage on a typical weekday in 2002.

Figure 4-1. Who Travels in Anchorage



Source: DOT&PF and MOA

Figure 4-2. Why People Travel

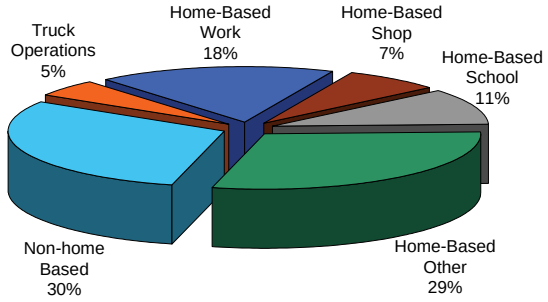


Source: 2002 Anchorage Household Survey

*A trip to "ferry" another person to and from desired location.

About 70 percent of all trips start or end at the traveler's home. These "home-based" trips include travel from home to work, shopping, and school. Trips that neither start nor end at the travelers' home are labeled "non-home" trips. Figure 4-3 shows the percentage of trips by purpose when viewed as home-based or non-home trips.

Figure 4-3. Home and Non-home Trips by Purpose



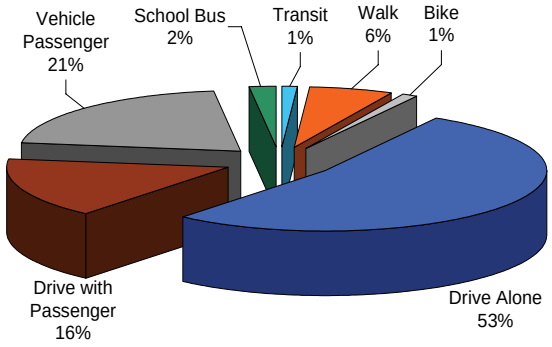
Source: 2002 Anchorage Household Survey

How People Travel

Walking, bicycles, automobiles, public transit, taxis, and trucks, as well as rail, air, and marine transport, all contribute to the mix of travel modes that serve daily needs.

Most trips in the Anchorage area—90 percent—are made in personal vehicles, either as drivers or passengers. Figure 4-4 shows the distribution of travel by mode in Anchorage on a typical weekday in 2002.

Figure 4-4. How People Travel

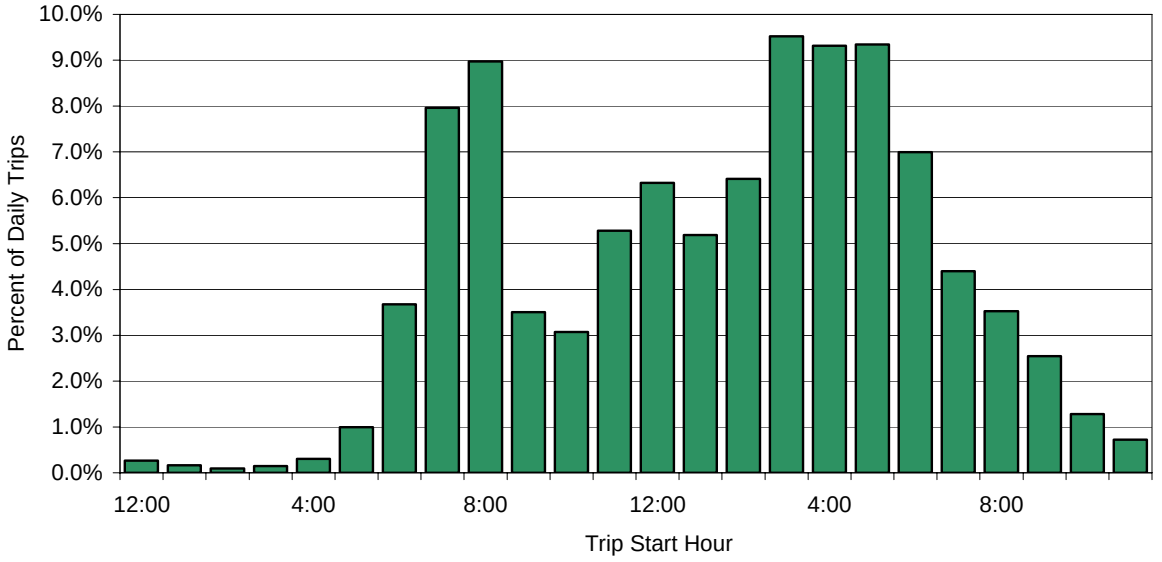


Source: 2002 Anchorage Household Survey

When People Travel

Travel occurs in a repetitive, daily cycle that mimics community activity. Characterized by low volume during night and early morning hours, trips increase abruptly for the morning commute, decrease during mid-day, and rise to the highest level during the afternoon commute, before steadily declining in the evening. This pattern repeats itself each weekday throughout the year, although the number of trips varies with seasons and weather conditions. Figure 4-5 charts trips in Anchorage on a typical weekday in 2002 by time of departure.

Figure 4-5. When People Travel



Source: 2002 Anchorage Household Survey

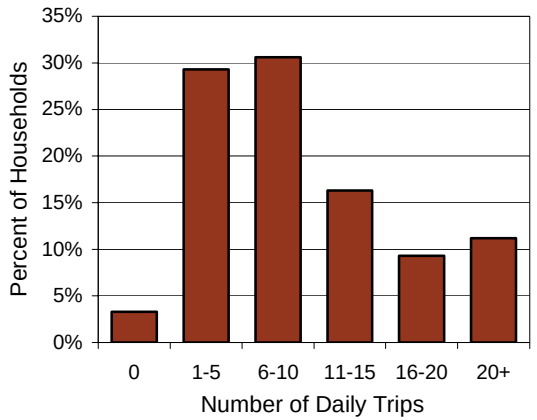
What Determines Household Travel

The 2002 Anchorage Household Survey showed that household members in an average Anchorage household in 2002 made 10.3 trips daily. Survey findings are available in *Anchorage Household Travel Survey* by NuStats (2002). Table 4-1 compares key travel statistics for Anchorage with those for selected metropolitan areas. The areas were selected by the availability of recent surveys, and statistics were calculated similarly for each area.

Among the five metropolitan areas, Anchorage has a larger average household size, more vehicles per household, more daily trips per person, and more trips per household. The Anchorage statistics are partly related to evolution of the municipality after World War II, a maturation characterized by lower-density development permitted by the availability of automobiles.

The statistics in Table 4-1 are areawide averages, but the numbers of trips made by individual households vary widely. Figure 4-6 illustrates the percentage of households making different numbers of daily trips.

Figure 4-6. Household Trips per Day

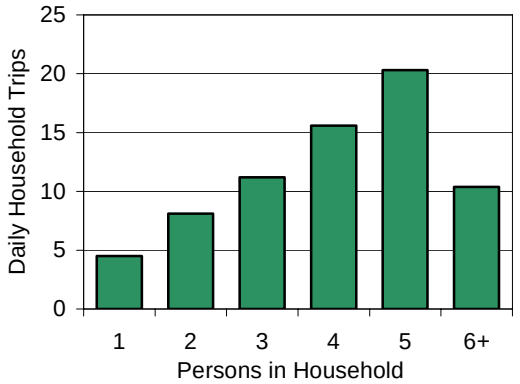


Source: 2002 Anchorage Household Survey

Persons per Household

The number of persons in a family or household influences the number of daily household trips. As shown in Figure 4-7, the household daily trips range from single-person households at 4.5 trips to households with five persons at 20.3 trips. Clearly the number of persons per household is an important determinant of household travel needs and activity.

Figure 4-7. Household Trips by Household Size



Source: 2002 Anchorage Household Survey

Number of Workers

The number of workers in a household also affects daily trips. As shown by the 2002 Anchorage Household Survey, most households have one or two workers (41 and 37 percent, respectively), 6 percent have three or more workers, and 16 percent of households have no workers. Figure 4-8 displays the average daily person trips related to workers per household. A tally of the average daily trips by the number of workers in households showed 6.3 trips for no workers, 8.5 trips for one worker, 11.7 trips for two workers, and 18.2 trips for three or more workers.

Table 4-1. Household and Travel Statistics for Comparative Metropolitan Areas

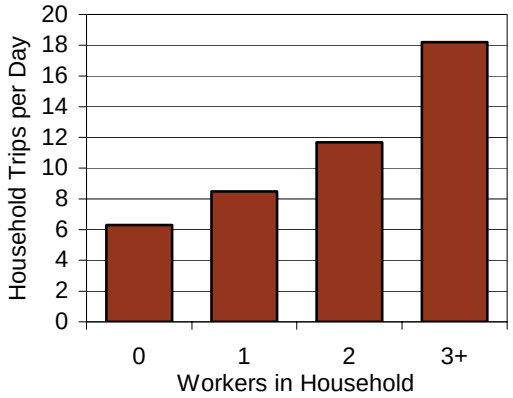
Item	Anchorage, AK	Knoxville, TN	Columbus, OH	Pittsburgh, PA	Philadelphia, PA
Survey year	2002	1999-2000	1999	2001-2002	1999-2000
Persons per household	2.6	2.4	2.5	2.4	2.4
Household vehicles	2.0	1.8	1.7	1.8	1.6
Trips per person	4.1	3.8	3.8	3.2	3.5
Trips per household	10.3	8.2	9.5	7.2	8.1

Source: NuStats, *Anchorage Household Travel Survey*, 2002

Vehicles Owned or Available

The number of vehicles owned or available to household members correlates closely with the number of workers per household. The 2002 Anchorage Household Survey revealed that households with no vehicles available (6 percent of households) average 4.4 person trips per day. Households with two vehicles available (42 percent of households) average 11.3 trips, and those with four or more vehicles make an average of 15.5 trips per day.

Figure 4-8. Household Trips by Workers in Household



Source: 2002 Anchorage Household Survey

Household Income

Household income also affects daily trips and the modes used for travel. Table 4-2 shows that lower income households make both fewer daily trips and more trips by public transit. Conversely, higher income households make the most trips and have the lowest transit use.

Classification of Households for Estimating Travel

Clearly many factors influence the number of trips made by households. When they are grouped into categories with similar attributes, such as the number of persons, number of workers, and income levels, consistencies among households can be identified. Household classification is the basis for deriving aggregate trip forecasts and travel patterns for the entire MOA, its neighborhood, and community subareas. These relationships were used to estimate and examine travel in 2025.

Table 4-2. Household Income, Trips, and Transit Use

Household Income ($)	Percentage of Total Households	Average Daily Weekday Trips per Household	Percentage of Households That Use Transit Service
<40,000	27	7.1	13.2
40,000-70,000	33	9.9	10.9
≥70,000	40	13.0	2.0

Where Do People Travel

As noted above, nearly 70 percent of all travel starts or ends at residences. Therefore, the residential land patterns, shown in Figure 4-9, largely dictate the majority of travel movements in the region. The estimated 95,000 Anchorage households in 2002 can be categorized as follows:

- 48 percent, single-family detached dwellings
- 17 percent, single unit-attached or duplex units
- 20 percent, buildings with three to nine units
- 10 percent, buildings with 10 or more units
- 6 percent, mobile homes, recreational vehicles, boats, or other types of accommodations

Areas with higher concentrations of employment have greater volumes of traffic because employment sites are the most common destinations for home-based trips. Figures 4-10 and 4-11 show the MOA locations for employment and shopping establishments, respectively.

Figure 4-12 shows traveler residence locations for all home-based trips, and Figure 4-13 illustrates the non-home termini locations of those same trips. The home termini of trips in Figure 4-12 are strongly related to the residential land use map, and the non-home trip termini in Figure 4-13 are more closely aligned with major employment and commercial areas of the city.

Figure 4-9. Anchorage Residential Land Use, 1998

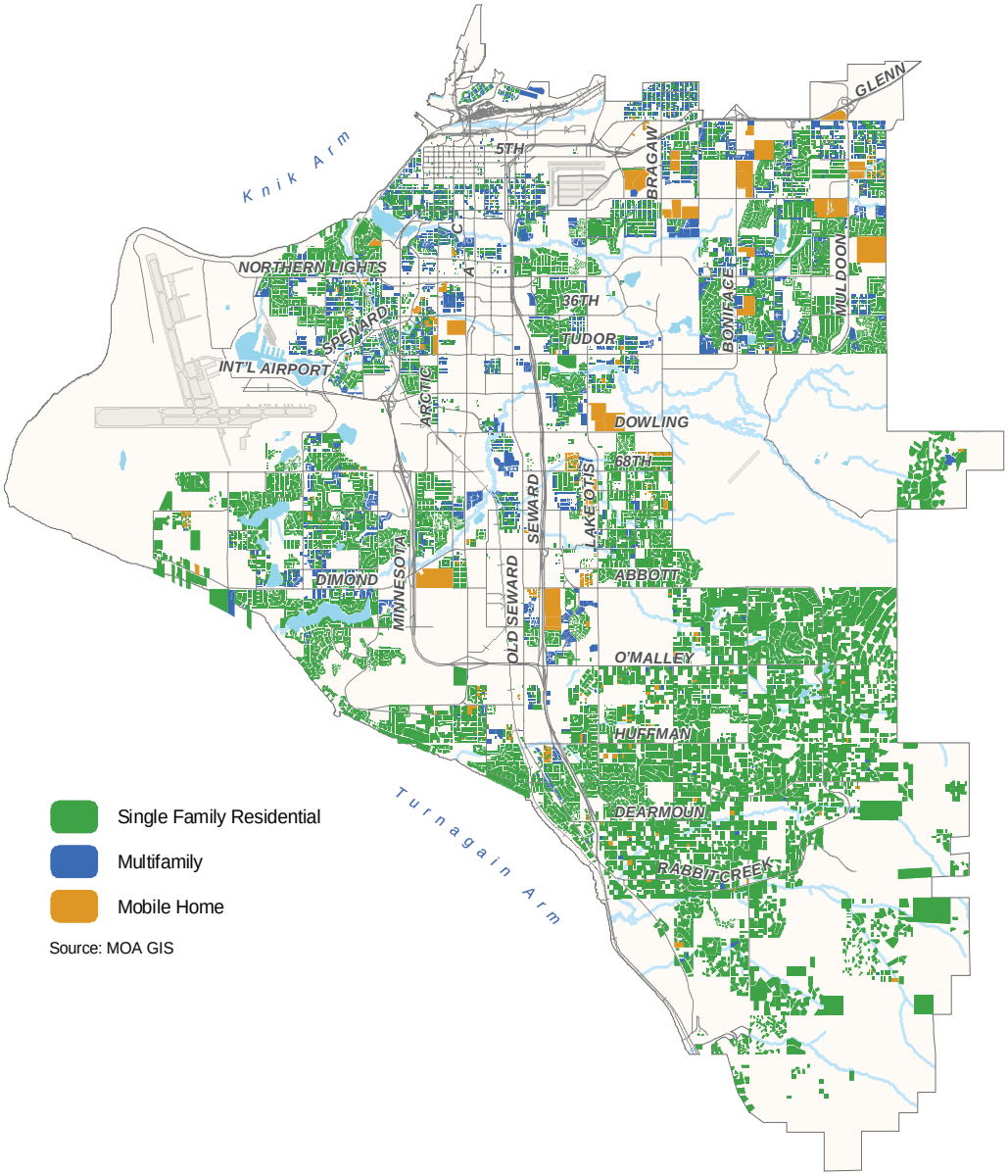


Figure 4-10. Anchorage Total Employment, 2002

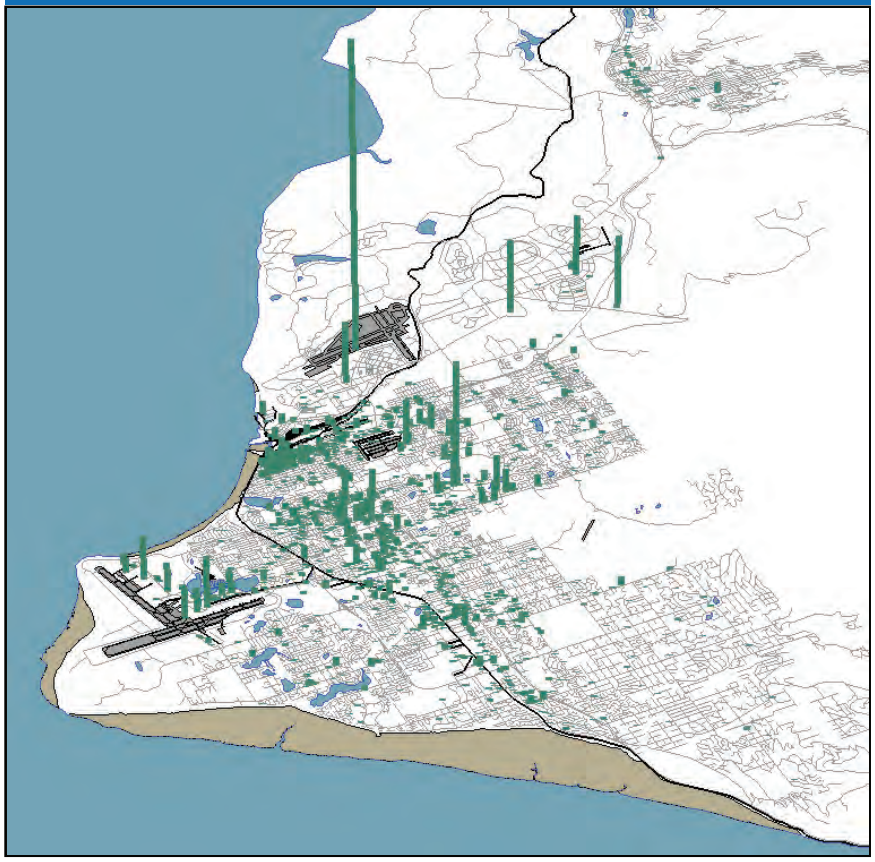


Figure 4-11. Anchorage Retail and Related Employment, 2002

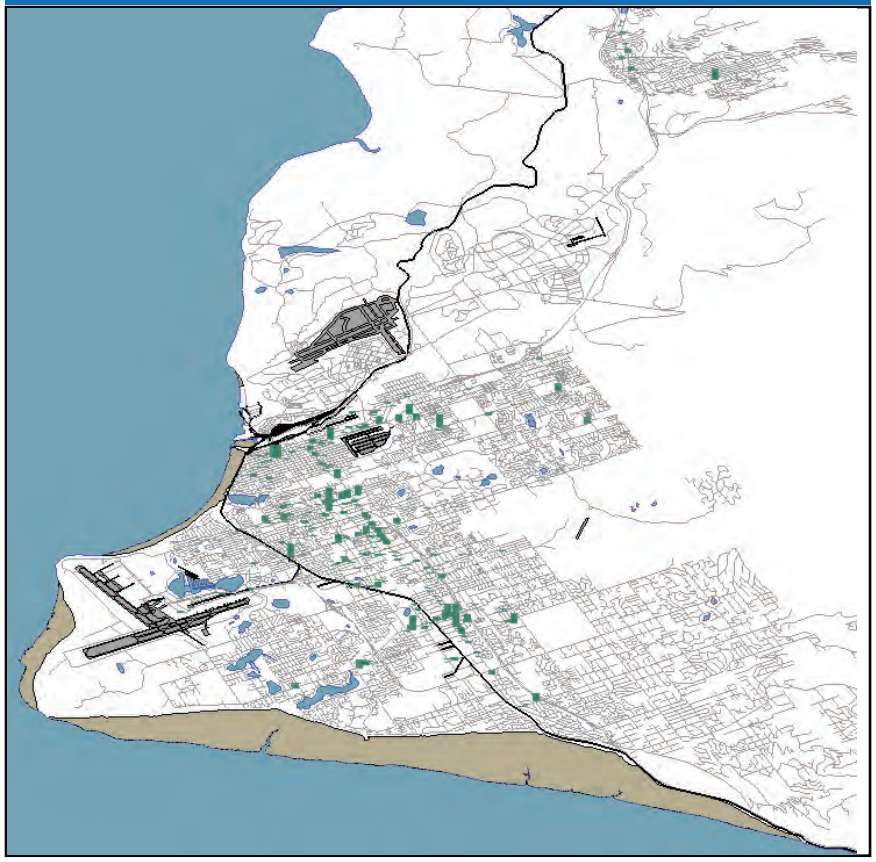


Figure 4-12. Traveler Residence Locations for All Home-Based Trips

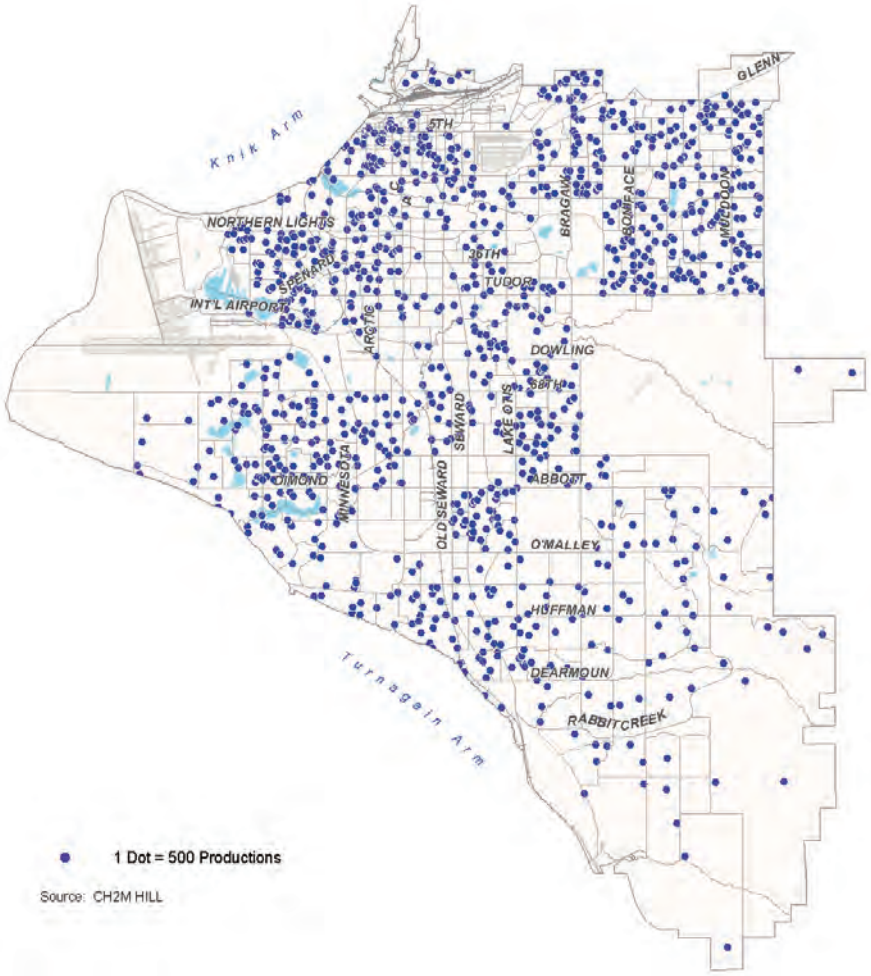
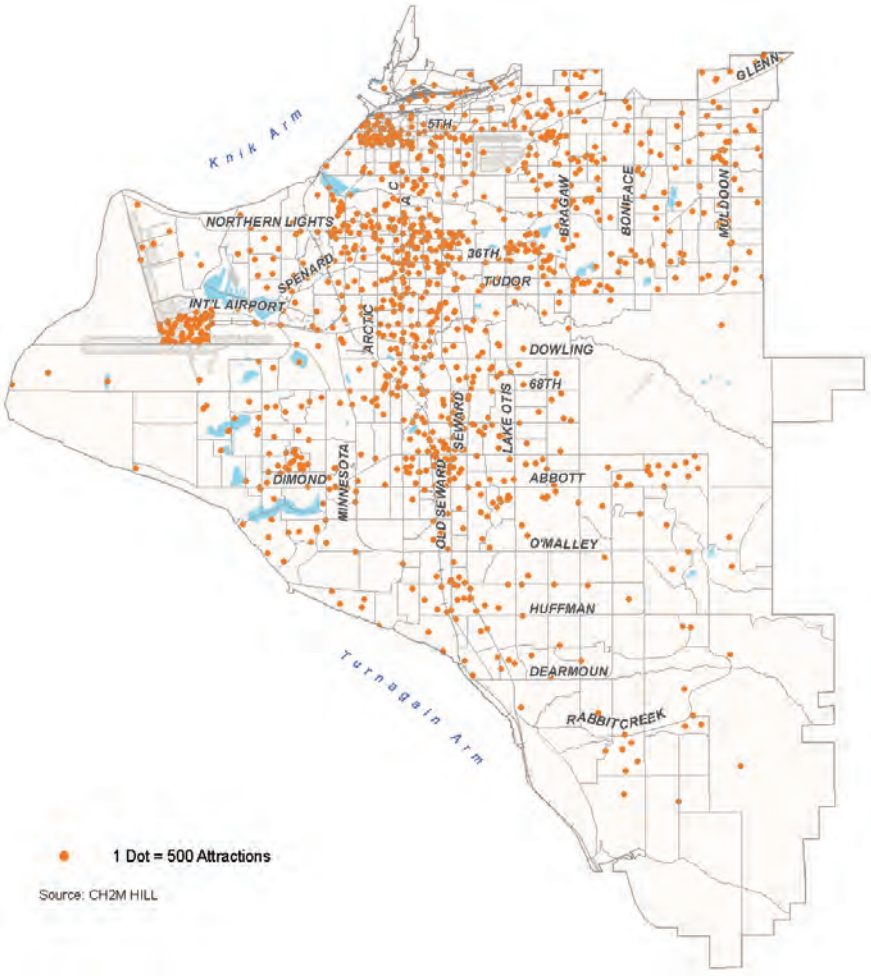


Figure 4-13. Non-home Termini Locations of All Home-Based Trips



Trip Travel Times

The travel time and distance for most trips are relatively short. Table 4-3 shows that work trips tend to be longer than other trips, and school trips generally are the shortest.

Table 4-3. Average Travel Time by Trip Purpose

Trip Purpose	Average Travel Time (Minutes)
Home-based work	13.35
Home-based shop	9.60
Home-based school	5.58
Home-based other	10.64
Non-home-based work	7.43
Non-home-based non-work	8.55
All trips	10.22

Source: 2002 Anchorage Household Survey

Summary

Travel in an urban area is complex and intertwined. Thousands of individuals and households make many transportation decisions each day—whether to travel, when to travel, by what mode, and to which destination. Collectively these individual travel decisions result in an aggregate demand on the Anchorage transportation system equal to more than 1 million trips each weekday in 2002. The next chapter takes stock of our existing transportation system infrastructure and how well it currently accommodates and serves those travel needs.

CHAPTER 5. Status of the System Today

Introduction

Transportation is an integral part of the daily lives of Anchorage residents. How efficiently the transportation system moves people and goods influences the quality of and time spent during travel, the cost and speed of shipping freight, and the safety of transportation users.

Transportation is shaped by the infrastructure, available modes of travel, and extent of system management and operations. The overall transportation network can be viewed as having seven essential elements:

- Roads
- Public transportation
- Pedestrian facilities
- Bicycle system
- Freight distribution
- Regional connections
- Congestion management

This chapter discusses how these elements are performing as part of the current transportation system. Trends of decreasing efficiency, longer travel times, and increased traffic hazards—already evident for the Anchorage transportation system—are expected to become more serious concerns in future years.

Additional information about the status of the Anchorage Bowl transportation system is available in the report *Status of the System, 2003* (CH2M HILL team, 2004).

Roads

The most visible component of the transportation system, the road network is used by private, commercial, and public transportation vehicles. Most of these vehicle trips (more than 90 percent in 2002) are made by drivers of private vehicles. Two-thirds of the total daily vehicle travel in 2002 was on surface streets (almost one-half on arterials and one-fifth on collector and local streets). Freeways and expressways carried the remaining one-third of all vehicle travel.

Roadway Characteristics

Essentially roads move traffic and provide access to land. A road network performs best when each type, or classification, of road is used for its primary function. Table 5-1 explains road classifications.

The busiest traffic routes in the Anchorage Bowl are important to mobility within the MOA. The freeway portions alone accommodate nearly one-third of all daily vehicle miles of travel (VMT). A large share of VMT on arterial streets occurs on only a few arterial segments—Seward Highway, Ingra-Gambell streets couplet, 5th and 6th avenues, DeBarr Road, Northern Lights/Benson boulevards, Boniface Parkway, Tudor Road, Lake Otis Parkway, Minnesota Drive, C Street, and Dimond Boulevard.

Road Ownership

Ownership of roads is shared by local, state and federal governments. Some roads have been designated as part of the National Highway System to reflect importance to the nation's economy, defense, and mobility. The Anchorage National Highway System roads consist of freeways and expressways, as well as several arterial segments (Figure 5-1).

Waiting in Traffic

Road users in Anchorage were delayed an average of 6,000 hours each day in 2002 because of congestion that prohibited free flow of traffic.

Table 5-1. Road Classifications and Their Characteristics

Classification	Primary Function	Examples	2002 Centerline Miles[a] in Anchorage Bowl	Comments
Freeway	Carries traffic (single role). Provides most mobility and least access.	Minnesota Drive; Glenn and Seward highways	18	Freeway characteristics accommodate the sole purpose of carrying traffic: high speed, limited access (no intersections), and grade-separated interchanges, providing the most safety benefit in crash reductions. The typical volume of a four-lane freeway is more than 40,000 ADT.
Expressway	Carries through traffic. Provides high mobility and somewhat restricted access.	International Airport Road between Minnesota Drive and Ted Stevens Anchorage International Airport	4	An expressway accommodates through traffic with full or partial control of access. Intersections may allow access from major arterials. Speeds typically are slower than those for freeways. The typical volume of a four-lane expressway is more than 20,000 ADT.
Arterial	Carries large volumes of traffic and goods, generally from one part of the community to another. Provides moderate to high levels of mobility and access.	Tudor Road, Northern Lights Boulevard, and 36th Avenue	144	Arterials handle the largest share of travel in Anchorage. They connect major employment centers, activity centers, and residential areas. The typical volumes range from 10,000 ADT for a two-lane (minor) arterial to 60,000 ADT for a six-lane (major) arterial.
Collector	Collects traffic from local streets and conducts it to arterials, other local streets, and activity centers. Provides limited mobility and high level of access.	Baxter and Wisconsin roads and Hillside Drive	99	Collectors accumulate traffic from local streets and provide connections to shopping centers, schools, and other commercial and community centers. The typical volumes range from 2,000 to 10,000 ADT for a two-lane collector.
Local street	Allows access to adjacent properties. Provides the highest level of access.	Streets in neighborhoods	840	These roads specialize in connecting residential properties to other parts of the roadway network. Speeds are low, and through travel is discouraged. The typical volume of a two-lane local street is less than 2,000 ADT.

[a]The centerline mile is used for comparison purposes. This unit of measurement reflects distance as the sole measurement and does not account for multiple lanes.
ADT = average daily traffic
Source: *Official Streets and Highways Plan*, MOA, 1996.

Contiguous road segments are owned by the State of Alaska and MOA (Figure 5-2), illustrating the importance of close intergovernmental cooperation and collaboration. In Anchorage, the federal government owns roads on federal lands such as military bases.

Movement or Delay

Movement within the MOA is increasing. The VMT climbed every year in the decade preceding 2002, increasing 19 percent from 3.8 billion in 1993 to 4.7 billion in 2002. The use of a road and its capacity for carrying vehicle volume is measured in a unit called "average daily traffic" (ADT), which represents the average number of vehicles traveling on a segment each day. Figure 5-3 shows 2002 ADT on Anchorage roads that carry large volumes of traffic (freeways, expressways, and arterials).

The factors below affect efficient flow of traffic:

- Traffic signal timing and spacing
- Design and spacing of roads and intersections
- Number of lanes and other road features that affect capacity
- Type and amount of access along corridor (driveway and side streets)
- Appropriate spacing, connections, and classifications of roads

Figure 5-1. National Highway System

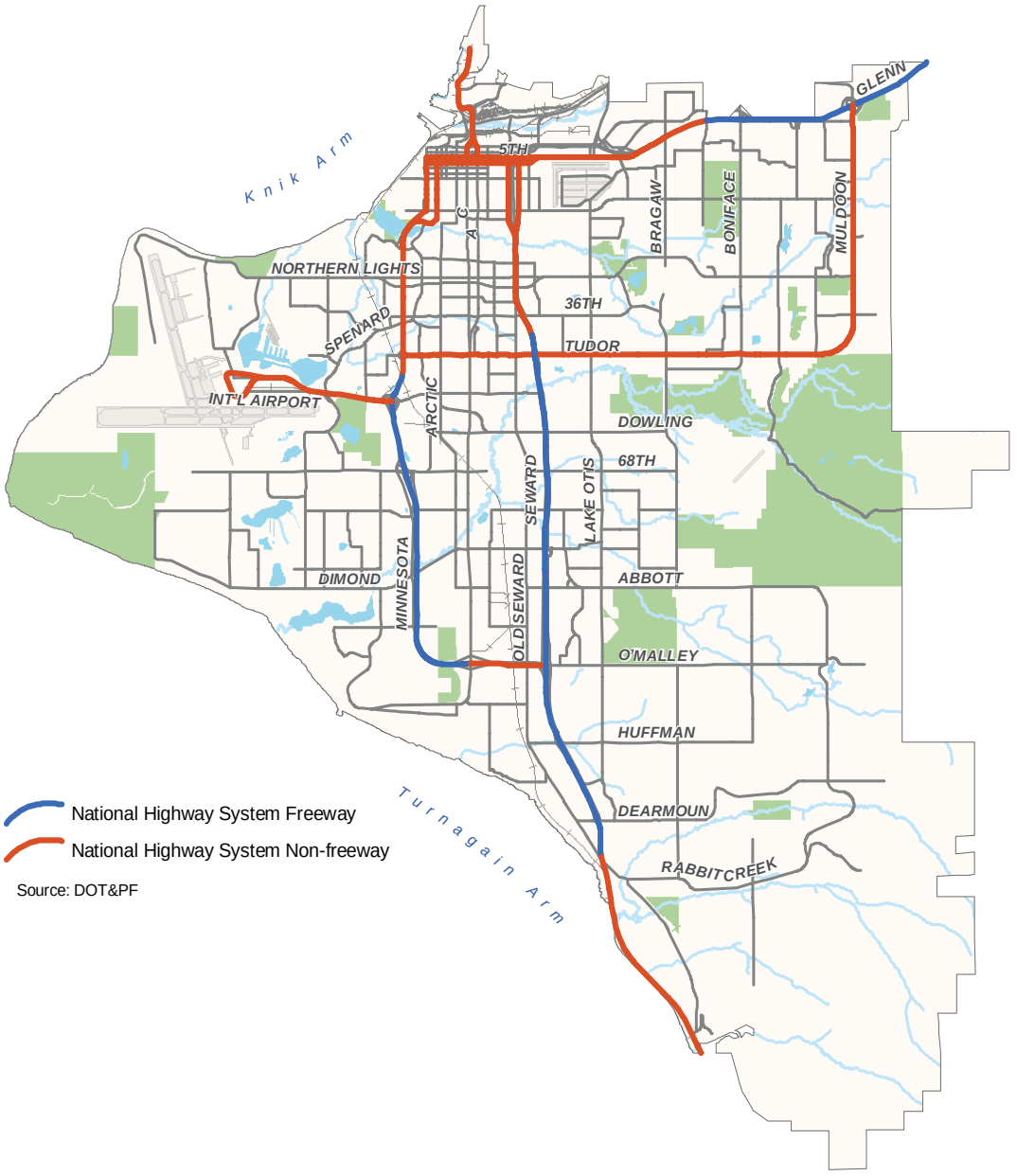


Figure 5-2. Road Ownership

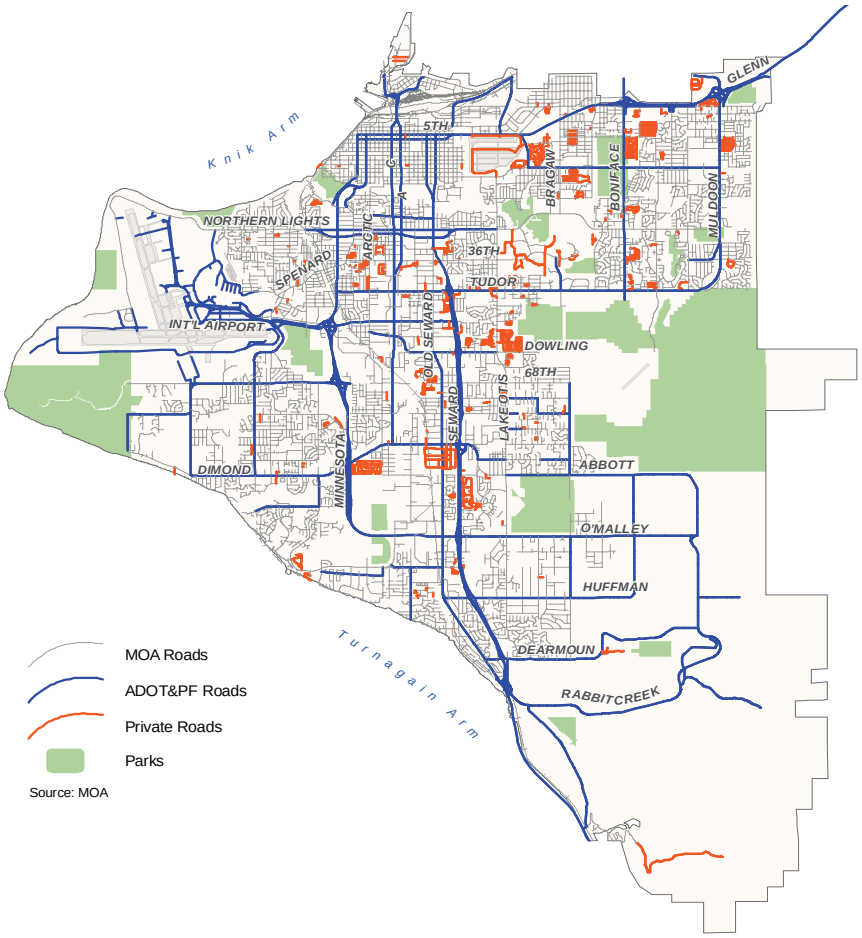
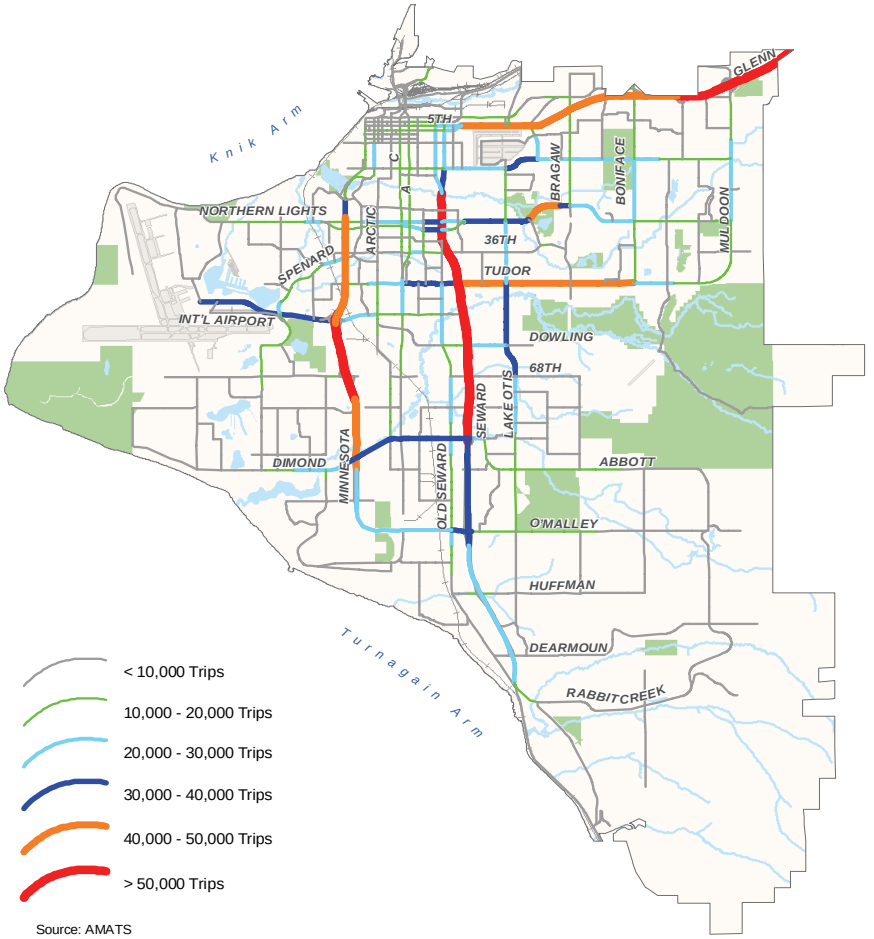


Figure 5-3. Average Daily Traffic, 2002



"Level of service" (LOS) describes how well traffic flows on a road based on its design and lane capacity. The roadway LOS scale ranges from LOS A—free-flow traffic—to LOS F—congested conditions that severely stall traffic. Figure 5-4 portrays 2002 LOS during morning and afternoon peak-travel periods.

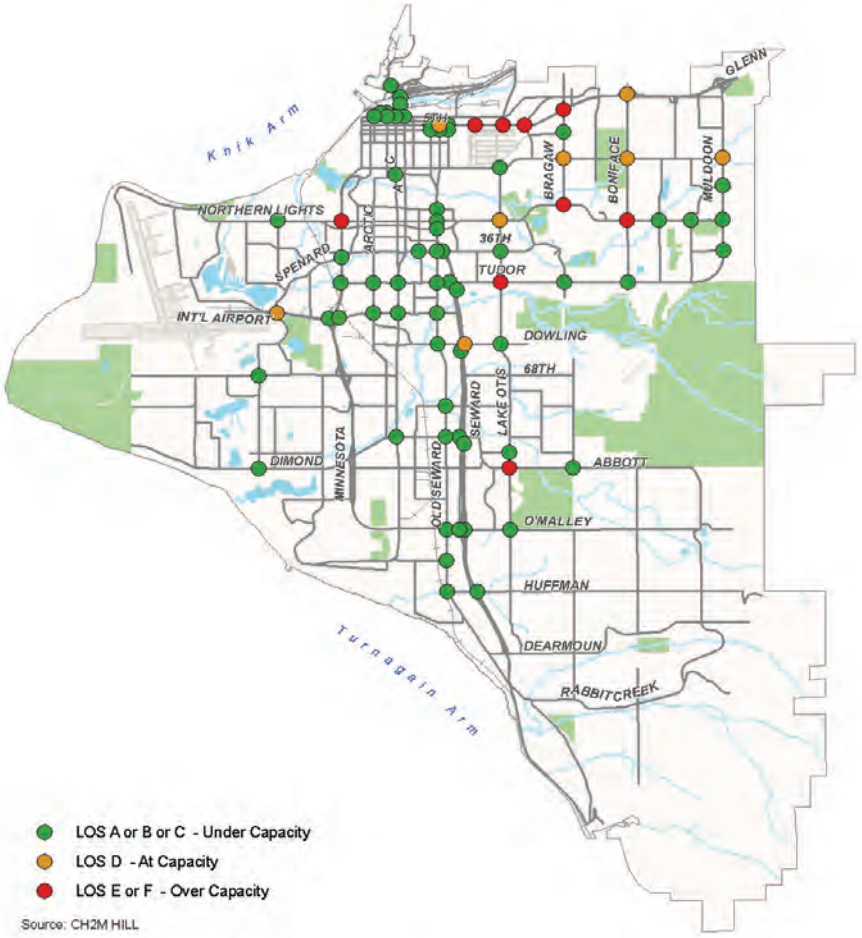
Applied to intersections, the LOS scale ranges from LOS A—all vehicles move through a traffic light during a single green cycle with no delay—to LOS F—vehicle drivers experience long delays at traffic lights, waiting through multiple green traffic signals. Figures 5-5 and 5-6 show the 2002 intersection LOS in the morning and afternoon peak periods of travel, respectively. Comparison of intersection LOS data available for both 1998 and 2002 indicates more delay at 56 percent of the intersections in the afternoon peak period in 2002.

Delays Affect Safety, Freight Costs, and Service Delivery

The travel time spent by vehicle occupants is not the only concern when roads and intersections perform at poor level of service. The flow of traffic also affects travel time required for public transportation, school buses, freight shipments, and emergency service response. Delays can drive up the cost of shipping, hinder fire truck and ambulance access, and affect coordination of scheduled activities.

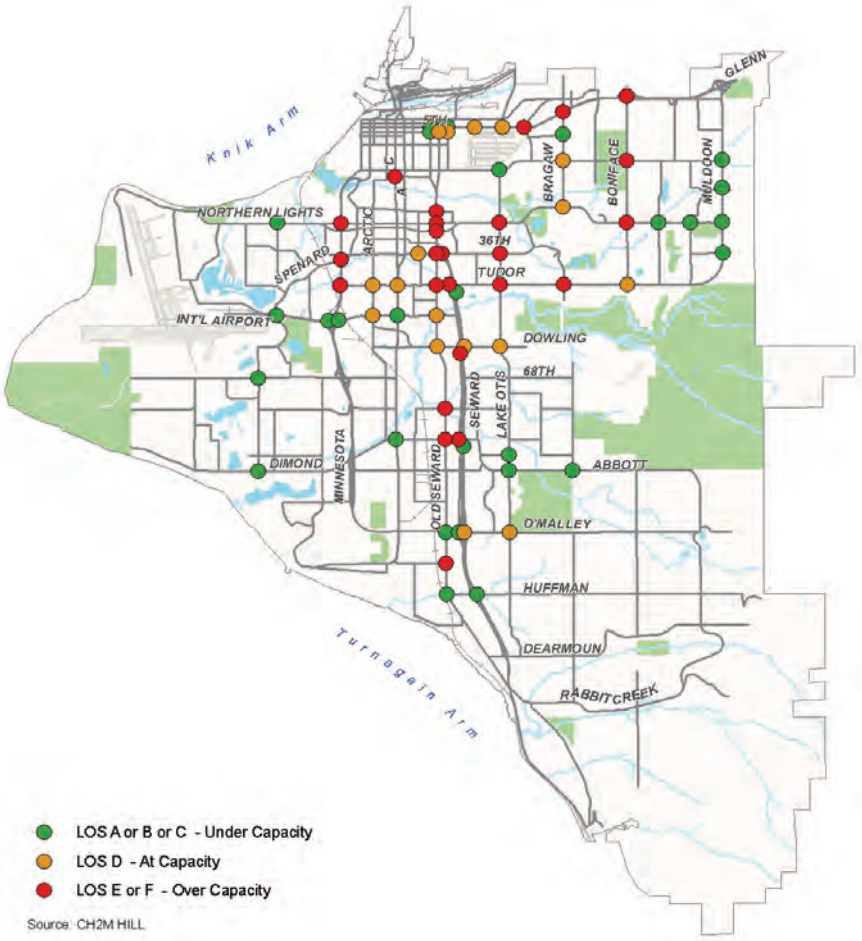
Figure 5-4. Freeway Level of Service, 2002

Figure 5-5. Intersection Level of Service, Morning Peak Period, 2002



In the morning peak period, 16 of 78 intersections, primarily on the Glenn Highway, Northern Lights Boulevard, and Lake Otis Parkway, showed significant delays (LOS D, E, or F).

Figure 5-6. Intersection Level of Service, Afternoon Peak Period, 2002



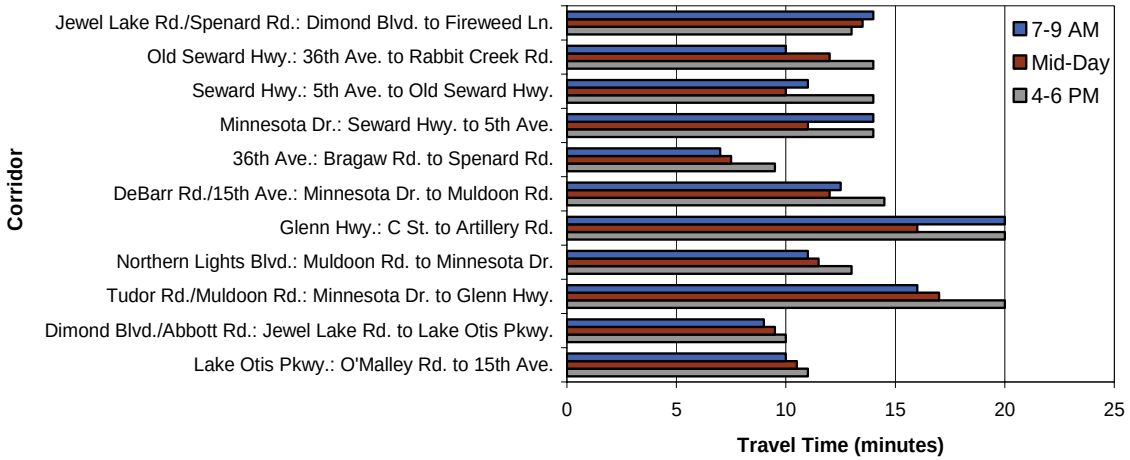
In the afternoon peak period, 40 intersections, or 51 percent off the 78 intersections examined, showed significant delays (LOS D, E, or F).

Travel Time Variables

On many road segments, the time required for a vehicle in Anchorage to travel from Point A to Point B varies by time of day. Studies conducted in 2003 showed that trips made on most corridors took longer during the afternoon peak period than during mid-day (Figure 5-7).

In a comparison of 2003 and 1998 travel times for the dominant direction of traffic during the afternoon peak period, travel times generally were longer in 2003. For example, travel time increased 21 percent for the Glenn Highway and 19 percent for Minnesota Drive, findings consistent with population and housing growth in the Mat-Su Valley and South Anchorage.

Figure 5-7. Automobile Travel by Time of Day, 2003



Source: CH2M HILL

Crashes Increase with More Vehicle Miles Traveled

Roads and intersections with the highest traffic volumes and LOS ratings of D, E, or F tend to be locations with the most crashes. Reported crashes show a generally stable trend for the years 1998 through 2003 (Table 5-2).

Public Transportation

Bus Service

People Mover is the fixed-route bus service in Anchorage operated by the MOA Department of Public Transportation. In 2002, buses carried 3.12 million passengers. Forty-one buses with 40-passsenger capacities operated on 14 urban fixed routes and 3 express routes. Bus service ranged from 30- to 60-minute frequency during peak periods and generally every 60 minutes for other hours on weekdays. On weekends, service ranged from 60- to 120-minute frequency.

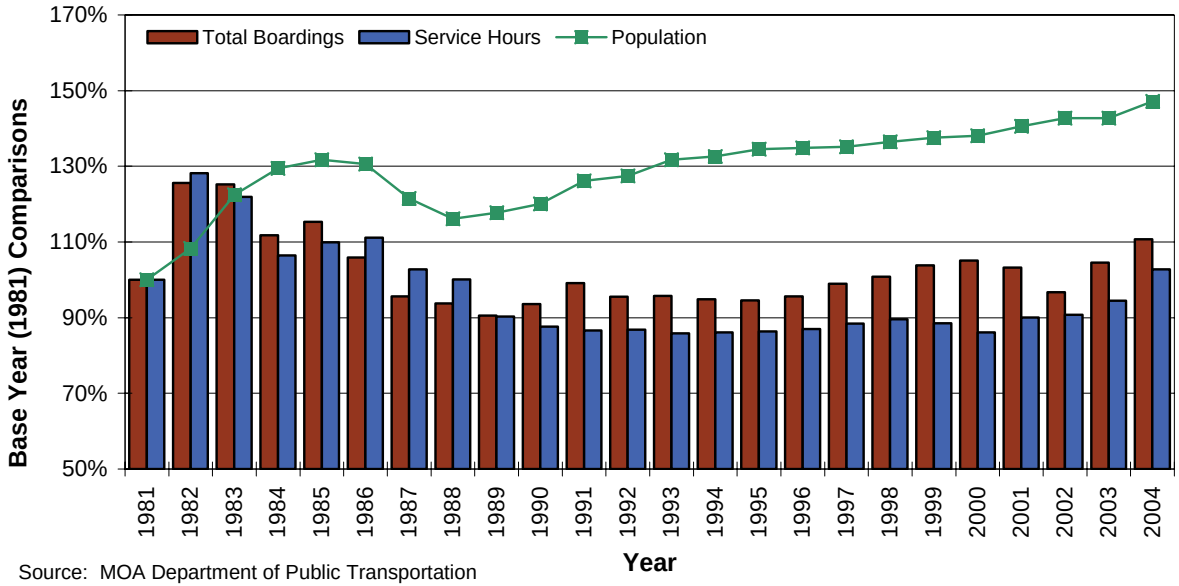
As shown in Figure 5-8, bus ridership and service hours remained fairly stable during the decade from 1992 to 2002; rider gains in 1999 and 2000 resulted from free service offered during periods of poor air quality. While population increased steadily, transit service declined from 0.44 bus hours per capita in 1992 to 0.41 in 2002. Many members of the Anchorage community rely heavily on public transportation. Among them are young and elderly persons, non-drivers, and others without access to private vehicles, for reasons such as budget, living accommodations, medical conditions, or physical limitations.

Table 5-2. Crashes Reported at Selected Intersections, 1998–2003

Intersections Rated LOS D or Worse During Morning or Afternoon Peak Hours	Number of Crashes					
	1998	1999	2000	2001	2002	2003
Glenn Highway and						
Bragaw Street	23	40	28	41	50	28
Airport Heights	-	19	19	41	24	20
Seward Highway and						
Fireweed Lane	37	36	34	24	29	21
Northern Lights Boulevard	32	30	39	37	46	25
Benson Boulevard	28	41	39	51	43	49
36th Avenue	36	43	39	49	37	46
Lake Otis Parkway and						
Northern Lights Boulevard	33	36	35	39	35	32
Tudor Road	40	54	57	49	57	48
36th Avenue	18	25	24	29	17	38
Old Seward Highway and						
Tudor Road	36	46	23	32	38	18
Dimond Boulevard	33	30	26	38	43	35

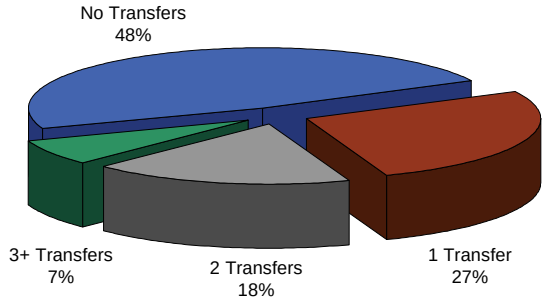
Sources: MOA annual traffic reports (1998-2003); CH2M HILL Team, *Status of the System*, 2003, 2004

Figure 5-8. People Mover Passenger Boardings and Service Hour Trends



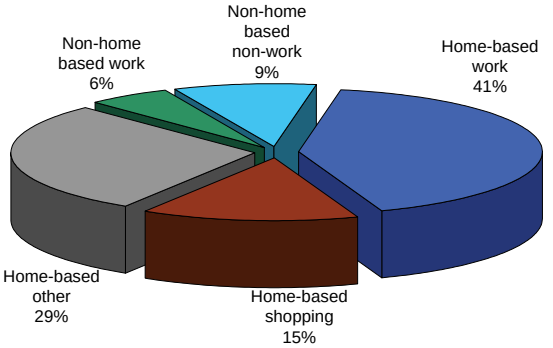
Source: MOA Department of Public Transportation

Figure 5-9. Transfers to Reach Transit Destinations



Source: People Mover Route Restructuring Onboard Survey, August 2001

Figure 5-10. Transit Trip by Purpose, 2002



Source: 2002 Anchorage Household Survey

The following factors affect ridership volume:

- Number of transfers required for travel
- Travel time
- Suitability of routes for desired trips
- Bus stop amenities, such as weather protection, seating, and lighting
- Cost of service
- Frequency of service
- Access to service (for example, sidewalk availability and maintenance)

Compared to travel by automobile, bus trips often took three times longer for the same trips in 2002. A 2001 People Mover survey of people riding buses showed that 52 percent of riders transferred to reach their destinations (Figure 5-9). According to a 2003 study, bus trips to destinations downtown took about 30 minutes; trips to destinations elsewhere generally required 45 minutes or more of travel.

One-quarter mile is considered to be a benchmark for reasonable transit access from point of origin or destination. People Mover bus service is not available in some areas; about 60 percent of the Anchorage Bowl population lived within one-quarter mile of a bus stop in 2002.

Figure 5-10 shows 2002 transit trips by purpose.

Other Public Transportation

In addition to regularly scheduled service on fixed routes, the following alternatives provide needed or desired services for shared transportation:

- AnchorRIDES—This shared-ride service provides demand-responsive, curb-to-curb transportation service to people with disabilities that prevent them from using the fixed-route system and to senior citizens. It meets the federal requirements of the Americans with Disabilities Act (ADA) and is structured to comply with various funding sources. AnchorRIDES operated 32 vehicles in 2002, funded primarily by local taxes and the Alaska Commission on Aging. Rider fares, donations, and Medicaid also contribute to operating costs. Nearly 193,000 passengers were served in 2002.
- DART—The DART service is a demand-responsive, flexible-route system that provides transit service in Anchorage and Chugiak-Eagle River low-density areas where fixed-route service is not economically feasible or practical. Users call ahead to arrange for pickups at designated locations.
- School Buses— The Anchorage School District operates buses that carry students to and from schools—252 buses in 2004.

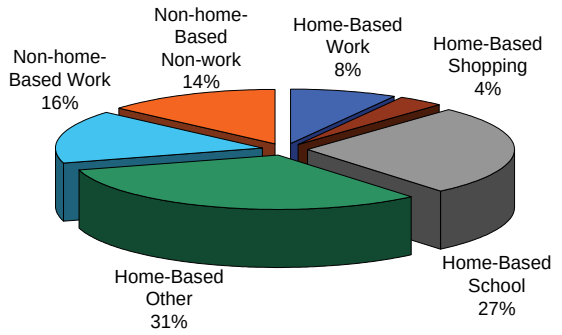
Restructuring People Mover

A major thrust to revamp People Mover routes and service structure was in motion in 2002 (*The People Mover Blueprint: A Plan to Restructure the Anchorage Transit System*, RLS and Associates, Inc., 2002) to provide more of a "customer focus" to the system. Initial phases of the 5-year restructuring program were begun in 2003.

Pedestrian Facilities

According to results of the 2002 Anchorage Household Survey, Anchorage residents made 56,720 walking trips on a typical weekday in spring 2002. That number is about five times the weekday bicycle trips and also five times the public transportation rides per weekday. The composition of these trips by purpose is shown in Figure 5-11.

Figure 5-11. Walking Trips by Purpose, 2002



Source: 2002 Anchorage Household Survey data collected in April and May

Pedestrian Mobility and Quality of Life

An important indicator for a livable city is the ability to walk. Features should include pedestrian-friendly amenities that make it easy and enjoyable to walk in neighborhoods and business districts. Safe walking routes surrounding schools also are important.

A favorable pedestrian environment provides connectivity. Desirable amenities include sidewalks set back from street curb lines, crosswalks, shorter walking distances across intersections, grade-separated walkways, benches, landscaping, signs, and lighting to increase personal security.

The physical layouts of many Anchorage neighborhoods do not promote walking. For example, most neighborhoods other than the older areas of Anchorage are not connected by local streets, resulting in poor linking among neighborhoods. And many adjoining housing parcels in Anchorage are positioned on long blocks that are not conducive to walking within a neighborhood or to other neighborhoods. Anchorage is known for its regional trail system but undeveloped pedestrian sidewalk system.

Also discouraging pedestrian activity is the predominant lack of pedestrian-friendly amenities noted above. Finally, Anchorage is challenged by winter weather that leaves sidewalks covered by snow, preventing or hindering pedestrian use. Many Anchorage pedestrian facilities are not cleared of snow.

Figure 5-12 shows the existing sidewalks and the paved and unpaved trails in Anchorage. Although recreational trails and paths are extensive in certain areas, pedestrian connectivity and accessibility are poor in many areas of the city.

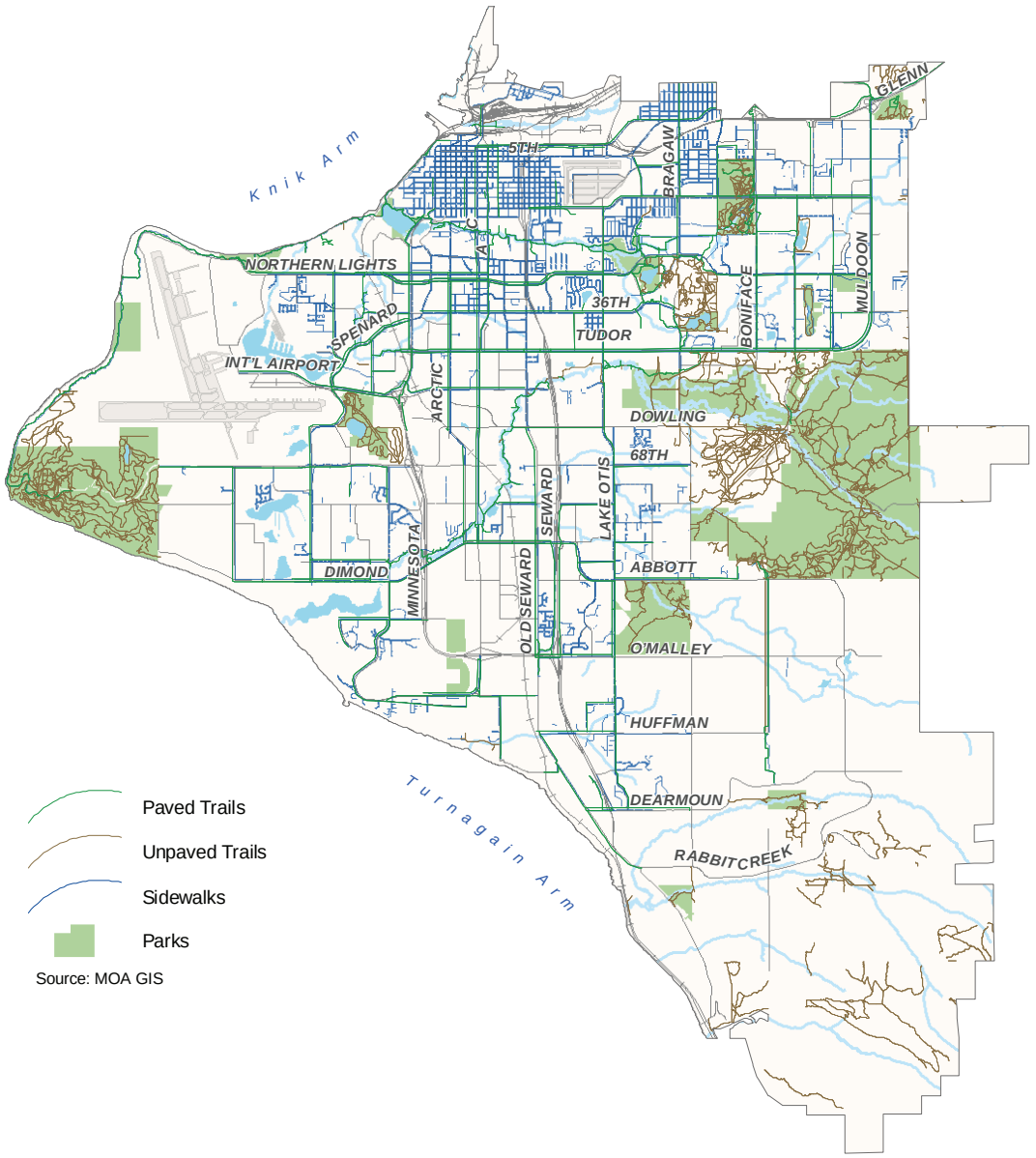
The sidewalk network in Anchorage is incomplete and discontinuous in many areas. Pedestrians are forced to walk in the street where no sidewalk is provided. Many road crossings are hazardous because of the number of lanes to be crossed and the presence of double turn lanes that make pedestrians hard to see from vehicles.

In general, sidewalk networks are more likely to be found in the older neighborhoods such as Downtown, Fairview, Mountain View, Airport Heights, and South Addition. In areas such as the newer subdivisions east of Bragaw and north of Tudor Road, the sidewalks are discontinuous or often missing entirely. Sidewalks are nearly nonexistent on the Hillside.

In 2002, Anchorage pedestrians could travel on these facilities:

- 451 miles of sidewalk
- 191 miles of paved trails
- 235 miles of unpaved trails

Figure 5-12. Pedestrian Sidewalks, Paths, and Trails, 2002



Bicycle System

The principal types of bicycle network planned in conjunction with transportation improvements and treated as part of the transportation system are bicycle lanes and bicycle trails. Bicycle lanes (or routes) serve as a viable transportation mode. They are striped on roads and allow bicyclists to ride at high speeds with traffic.

Bicycle trails consist of paved and unpaved paths. They are separated from roadways by varying distances and can be found in parks and greenbelts.

The predominant bicycle use of trails is for recreational riding, rather than commuting. The 2002 Anchorage Household Survey identified 11,500 bicycle trips per weekday in the spring, a number identical to People Mover bus trips. Bicycle trips account for 1 percent of weekday trips by all modes. The composition of bicycle trips by purpose is shown in Figure 5-13.

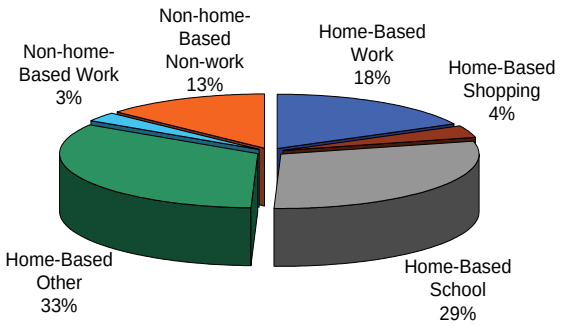
Recreational Trail Use

A 2003 count of trail users by the MOA Traffic Department observed the following at selected recreational trails:

- 22 percent higher use on weekends than weekdays in summer
- 71 percent more use in summer than in winter

All trail users—pedestrians, bicyclists, skiers, and others—were included in these counts.

Figure 5-13. Bike Trips by Purpose, 2002



Source: 2002 Anchorage Household Survey data collected in April and May

Crash statistics indicate that safety risks for bicyclists and pedestrians are highest on arterial and collector streets. Pedestrian and bicycle crashes were concentrated in Downtown and the northern portion of Midtown, around Northern Lights and Benson boulevards and 36th Avenue. Concentrations of crashes in these areas reflect the heavy vehicle traffic, distractions inherent to the high levels of activity, and higher use of sidewalks and trails by pedestrians and bicyclists.

Trail System Structure

Bicycle and pedestrians both use the trail networks, but sidewalks are seen as a separate pedestrian network that is not covered in the MOA *Areawide Trails Plan* (April 1997). The trails plan classifies components of the Anchorage trail system network as follows:

- Multi-use paved trails
- Multi-use unpaved trails
- Bicycle routes
- Cross-country ski trails
- Snowmobile trails
- Skijoring Trails
- Sled dog mushing trails
- Water trails
- Interpretive trails
- Grade-separated crossings
- Trailheads

Freight Distribution

Trucks of all sizes distribute goods that arrive and depart by air, sea, and rail carrying freight to, from, and throughout Anchorage and the region. Because freight distribution is an integral part of the daily economic activity of the MOA, freight travel patterns affect traffic and are affected by the operating efficiency of the road network. A 2001 MOA freight mobility study identified the following constraints to freight transport in Anchorage:

- Awkward access at the Port of Anchorage
- Delays from train operations and track operations in the port vicinity
- Road delays and poor signal timing
- Congestion at intersections
- Difficulties in executing left turns at many busy intersections

Table 5-3 shows the 2002–2004 daily truck traffic at select Anchorage locations. Heavy (combination unit) truck volumes were highest around the Port of Anchorage and on the National Highway System routes—Seward and Glenn highways. The truck volumes ranged from 3.4 percent to 9 percent of total daily traffic on urban freeways, but reached nearly 20 percent on rural sections. Truck trips numbering several hundred a day are common on many arterials in Anchorage, but typically compose from 1 to 3 percent of total daily vehicles. Most trucks on city streets are smaller, single-unit vehicles. (See the footnotes in Table 5-3 for definitions of single-unit and combination trucks.)

Table 5-3. Average Weekday Truck Counts at Spot Locations, 2002–2004

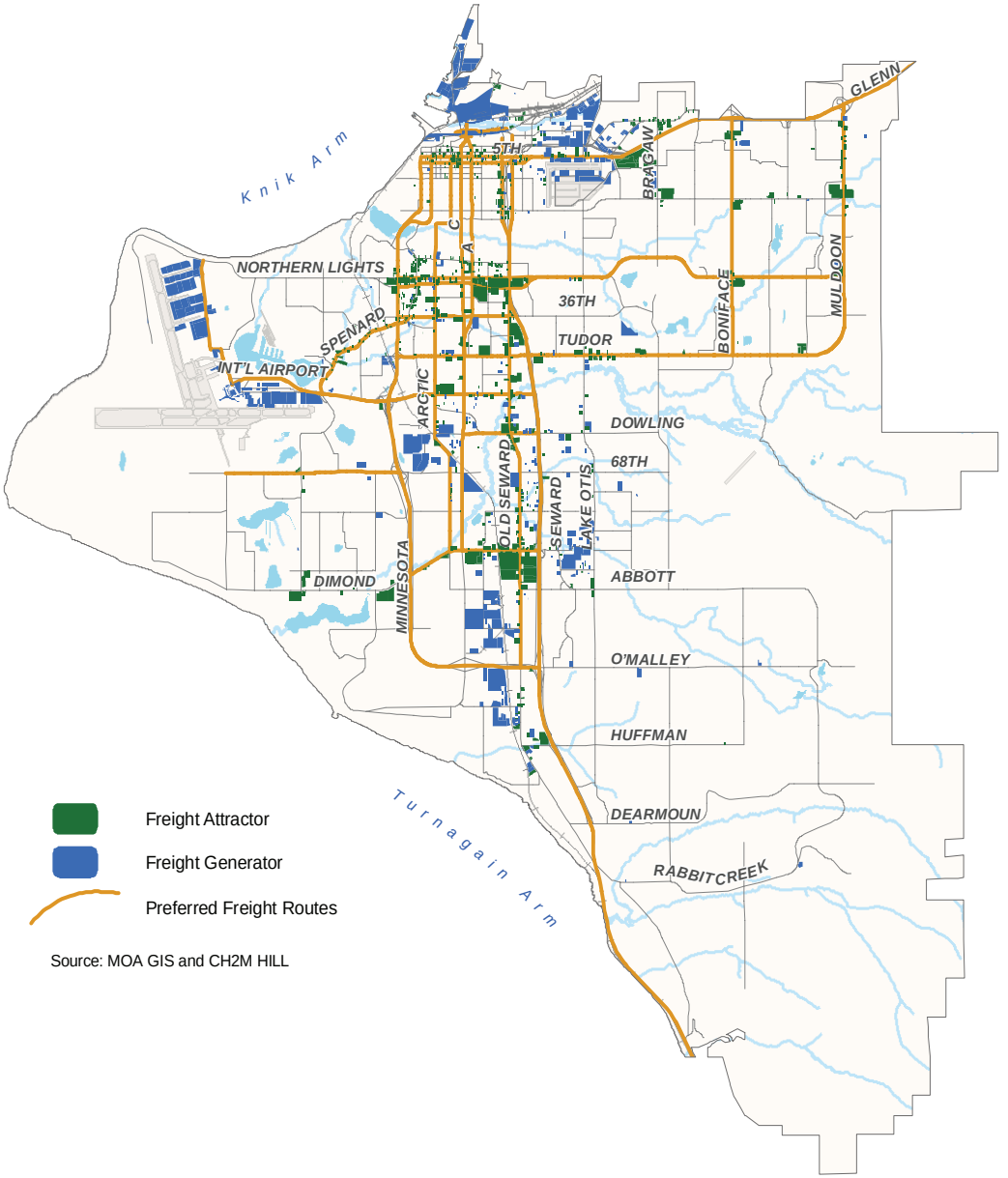
Location	Single-Unit Truck[a]	Combination Unit Truck[a]	Percentage of ADT
Port of Anchorage	110	640	40.0
Ocean Dock, north of A and C street ramps	358	647	37.2
Post Street, east of Reeve Boulevard	182	0	5.7
Glenn Highway east of Muldoon Road	1,825	585	4.7
Boniface Parkway, north of DeBarr Road	442	0	1.9
Bragaw Street, north of Penland Parkway	388	2	2.1
Fireweed Lane, east of Cordova Street	206	1	1.7
Benson Boulevard, east of A Street	839	15	3.1
Northern Lights Boulevard, west of Denali Street	315	722	12.0
Seward Highway, between 36th Avenue and Benson Boulevard	1,960	420	4.9
Tudor Road East of Boniface Parkway	875	130	3.0
Postmark Drive, south of Northern Lights Boulevard	46	0	0.8
Old International Airport Road, west of Jewel Lake Road	87	0	0.3
International Airport Road at Spenard Road	485	115	3.3
C Street, between Tudor Road and International Airport Road	445	190	2.7
Lake Otis Parkway, south of Dowling Road	1,169	3	3.9
Seward Highway, near 76th Avenue	3,250	1,820	9.0
Dimond Boulevard east of C Street	265	80	4.8
Minnesota Drive south of Raspberry Road	1,200	100	3.4
Seward Highway at Potters Marsh	1,230	520	19.7

[a] According to the *Annual Traffic Volume Report* prepared by DOT&PF in 2002, all single-unit and combination trucks are considered commercial vehicles. A single-unit truck has two or three axles. Examples are delivery trucks and dump trucks; pickups are not included. Combination trucks have four or more axles. Examples are concrete trucks, fuel trucks, and tractors hauling one or more trailers.

Source: MOA and DOT&PF

The locations that attract and generate freight are shown in Figure 5-14. The locations for generators and attractors were determined by using parcel information from the MOA land-use database, available as a geographic information system product. The Port of Anchorage and Ted Stevens Anchorage International Airport (TSAIA) are major generators of truck traffic bound for Anchorage locations and destinations within and outside the region. Among other entities that generate or attract significant numbers of truck trips are manufacturing facilities, freight terminals, postal facilities, and large retail and commercial centers. Government yards, utility service and maintenance facilities, and construction sites also generate truck activity.

Figure 5-14. Freight Generators and Attractors



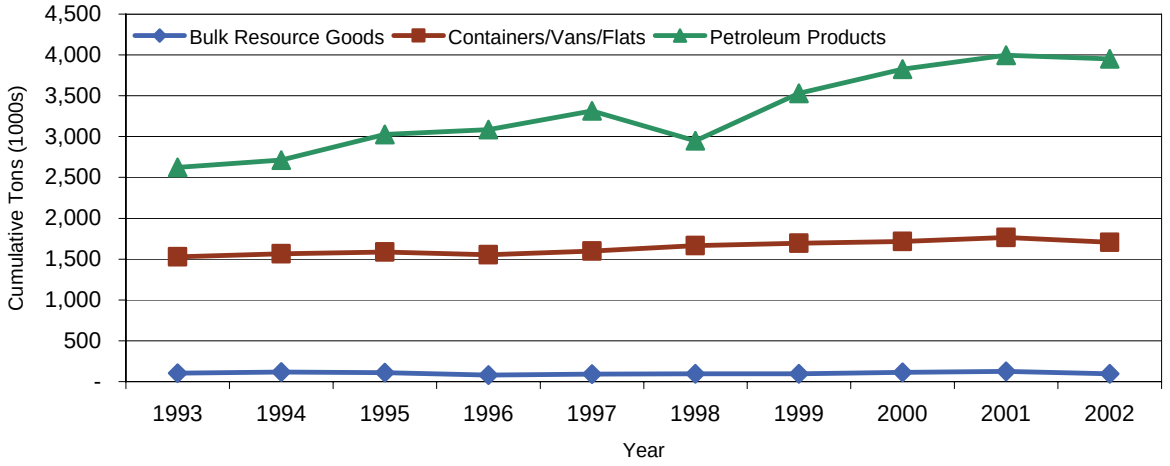
Port of Anchorage

Freight tonnage at the Port of Anchorage—containers and trailers, bulk resource materials, and petroleum products—rose 50 percent from 1993 to 2002. Figure 5-15 shows the tonnage composition. Trucks entering and leaving the port in 2002 moved more than 142,000 revenue loads.

Ted Stevens Anchorage International Airport

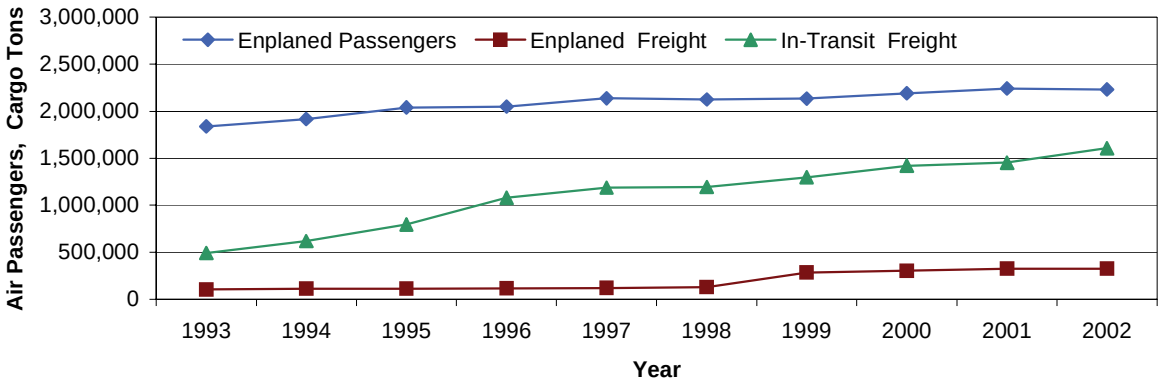
Figure 5-16 shows a stable or slow climb in passenger and freight volumes leaving TSAIA. Visitors, including travelers who arrived in or left Anchorage by cruise ship (traveling only one way by air), account for slightly more than half of air passenger travel at TSAIA (Figure 5-17). In summer 2002, an estimated 6,700 visitors per day arrived by air at TSAIA.

Figure 5-15. Port of Anchorage Tonnage Trends, 1993-2002



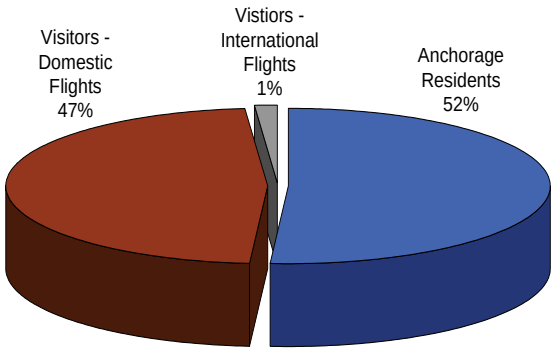
Source: Port of Anchorage

Figure 5-16. Ted Stevens Anchorage International Airport Passenger and Cargo Trends, 1993-2002



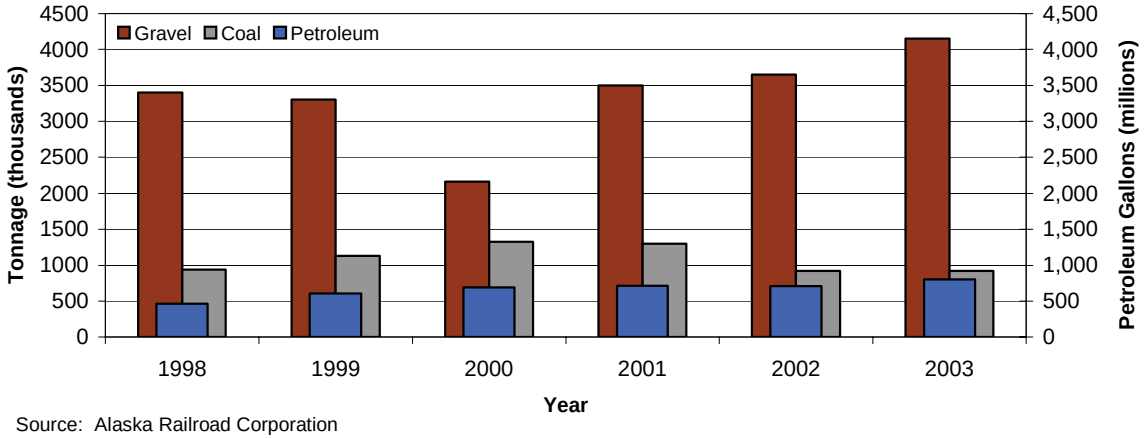
Source: Ted Stevens Anchorage International Airport

Figure 5-17. Ted Stevens Anchorage International Airport Passengers, 2002



Source: Ted Stevens Anchorage International Airport

Figure 5-18. Alaska Railroad Freight Trends, 1998-2003



Source: Alaska Railroad Corporation

Railroad

The railroad, which is owned by the State of Alaska and operated by Alaska Railroad Corporation, plays an important role in moving heavy freight. Rail transport moves bulk resource products and petroleum shipments to and through Anchorage.

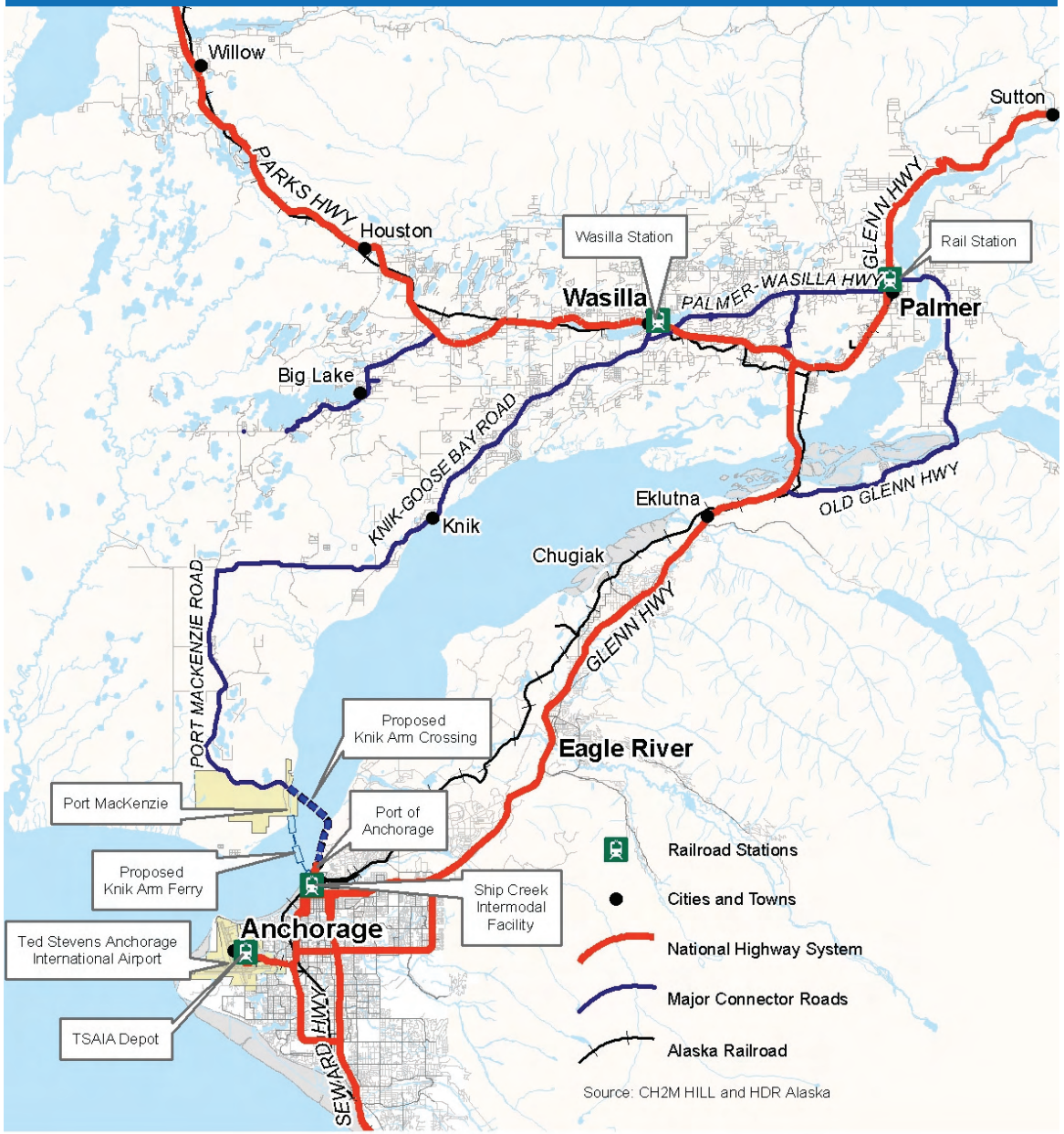
Rail freight volumes have been relatively steady. In 2002, the railroad transported nearly 7.5 million tons of freight. Figure 5-18 shows volumes of gravel, coal, and petroleum hauled by rail between 1998 and 2003.

General cargo and passengers, including cruise ship customers, also travel by rail. In 2002, rail passenger services carried 480,000 riders, primarily tourists.

Regional Connections

The transportation system connects Anchorage with the rest of the state, the country, and the world. On the National Highway System, cars and trucks move people and goods to and from other regions of the state. (See Figure 5-1.) Ships, planes, and the railroad carry consumables, manufactured products, and travelers to and from Anchorage. In addition, these modes are connected through transfer hubs and corridors in an intermodal transportation system that is depicted in Figure 5-19.

Figure 5-19. Regional Transportation Hubs and Corridors

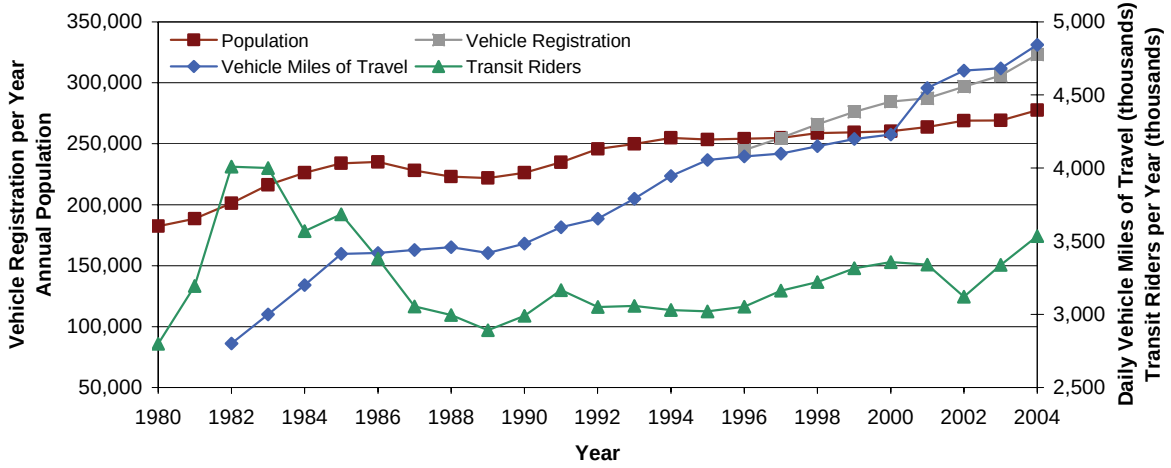


Congestion Management

Congestion management consists of actions and strategies to help manage peak-period travel now and to alleviate future congestion. These actions and strategies improve efficiency of the transportation system, provide alternative travel means to get some cars off the roads, reduce pollution, noise, and crashes, and increase safety for pedestrians and bicyclists.

Adverse effects of private vehicle reliance and heavy traffic are increasingly visible in Anchorage. A reflection of population and employment growth, vehicle ownership (Figure 5-20) continues to climb; vehicles registered in Anchorage reached 296,800 in 2002 and 323,240 by 2004. Vehicle trips by solo drivers account for the largest share of daily total trips. Daily VMT continues to rise faster than population because of urban sprawl. In 1990, the average daily VMT per capita was 15.4; by 2002, this figure was 17.4**.** Figure 5-21 shows that vehicle occupancy entering employment sites has decreased. In 2002, fewer than 10 percent of vehicles in the morning commute carried passengers.

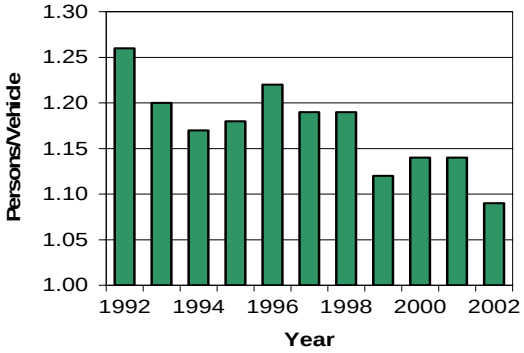
Figure 5-20. Vehicle Ownership and Use, 1980-2004



Note: Vehicle registration not available before 1995.

Source: MOA

Figure 5-21. Persons per Vehicle Entering Employment Sites During Morning Commute, 1992-2002



Source: MOA Department of Public Transportation

In 1994, to increase efficient use of the existing transportation system and reduce travel demand, especially trips by solo drivers, AMATS created the Congestion Management Program. The MOA Department of Public Transportation promotes ride sharing through its Share-A-Ride program and works with employers to identify Transportation Coordinators who encourage alternative transportation modes and promote ride sharing through carpools and vanpools.

The MOA Share-A-Ride program relies on the use of a confidential database of commuters interested in sharing rides to match potential carpool candidates with similar travel patterns and work schedules. In addition to the carpoolers connected through the MOA program, many drivers arrange their own carpools.

Vanpools are designed to meet the needs of long-distance commutes (at least 20 miles one-way). The MOA program makes vans available for groups of 8 to 13 people who can commute together. One person usually drives and maintains the van, and the riders pay a monthly fare.

Table 5-4 shows participation in ride-sharing programs. For 2003, of the 23 vanpools, all but 3 operated from the Mat-Su Valley to Anchorage job sites. As noted in the Public Transportation section, vanpools function best for long-distance commutes.

Status and Assessment of Anchorage Congestion Management Initiatives

The Congestion Management Program adopted in 1994 articulated many possible component activities; it did not identify priorities or provide guidance on the effectiveness or costs of various initiatives or strategies. Clear institutional responsibilities and staffing were not defined.

Table 5-4. Ride Sharing in the Anchorage Area, 2000–2003

Ride Sharing Entity	2000	2001	2002	2003
Registered applicants	4,484	4,298	4,377	3,878
Active carpools	423	348	209	314
Active carpoolers	860	713	419	634
Active vanpools	18	18	21	23
Active vanpoolers	231	260	270	323

Source: MOA Department of Public Transportation

Table 5-5 lists congestion management program strategies reported to be implemented to some degree. A number of them are miniscule in scale or impact, however. Some of the successes are discussed below.

Transit-Related Programs. The People Mover route restructuring initiative to revamp bus routes, coordinate schedules, and improve service frequencies, passenger amenities, multi-ride passes, accommodation of bicycles on transit, and transit service information and marketing actions is largely responsible for attracting a 23 percent gain in riders since 2002.

Telecommuting and Alternative Work Hours. Employer implementation of telecommuting arrangements represents a significant contribution to reducing commuter traffic demand. In 2002, 20,000 workers reported telecommuting in lieu of driving to work, eliminating about 15,000 commute trips per weekday to and from work. The number of eliminated trips exceeds the riders carried daily by People Mover.

Alternative Work Hours. A significant share of the Anchorage workforce operates on flexible work schedules (about 45 percent in 2002). Work schedule flexibility in combination with a relatively large share of workers in "non 8 to 5"positions reduces traditional morning and afternoon traffic during peak periods.

Intersection and Road Improvements. The Highway Safety Improvement Program was implemented to address problem intersections and road segments that have high traffic crash volumes. Good signal timing is important for efficient traffic operation. Implementation of a systemwide program of updating traffic signal timing and timing plans for more than 250 signalized intersections is under way. Additionally, traffic-calming protocols are applied to influence neighborhood traffic speed, safety, and cut-through traffic.

Table 5-5. Existing Congestion Management Strategies

Access management	Ride-sharing programs
Priority parking for carpools/vanpools	Employer subsidized transit use
On-site transportation coordinator	Ride share, transit, and bike marketing programs
Alternative work hours	Telecommuting
Improvements to bus routes and schedules	More frequent service
Transit passenger amenities	Transit marketing and information programs
Monthly transit passes	Improved feeder bus service
Improved express bus service	Park-and-ride facilities
Road operational changes	Transit service for elderly and handicapped individuals
Intersection improvements	Signal system improvements
Roadway Improvements	Enforcement
Turn prohibitions	Public-sector parking pricing
On-street parking controls	Bicycle plans and maps
Bicycle lockers, racks, and other storage	Pedestrian connections with transit
Integration of facilities for bicyclists with transit[a]	Safety consideration for sidewalks

[a]The program to integrate facilities for bicyclist with transit was a new strategy recommended in the 1994 Congestion Management Program that was implemented since the plan was adopted.

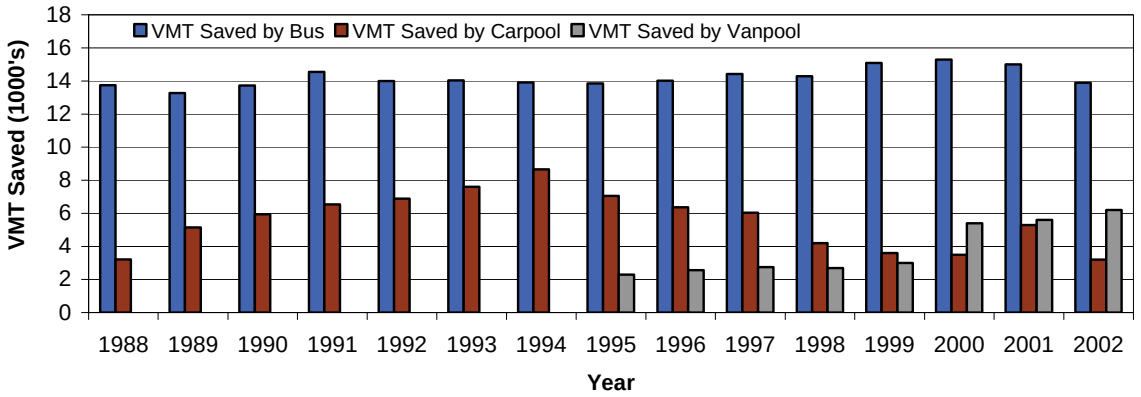
Source: MOA *Congestion Management Program*, October 1994

Ride Sharing. Vanpools in the MOA Share-A-Ride program carry commuter groups, and operate over long distances, significantly contributing to reducing systemwide VMT. Funding of van acquisition is a limiting constraint in implementing more vanpools, and a large waiting list of interested commuters cannot currently be served. Carpool, vanpool marketing, and ride matching are ongoing programs facilitated by the MOA Department of Public Transportation. Currently, approximately

800 persons participate in MOA Share-a-Ride carpools.

The benefits of commuter carpools or vanpools include reduced traffic congestion, improved air quality, and lower costs for commuting expenses such as gas and vehicle wear and tear. Those combined trips reduce VMT, including an estimated 3.2 million VMT saved by carpools and 6.2 VMT saved by vanpools in the MOA programs in 2002. Riders of the AnchorRIDES minibuses and the People Mover bus service also reduce VMT, relieving the road burden by almost 14 million VMT in 2002. See Figure 5-22. Other informal ride sharing for commute to work trips (that is not arranged by the Share-a-Ride program) also saves VMT.

Figure 5-22. Vehicle Miles of Travel Saved by Transit, Carpool, and Vanpool, 1988-2002



Source: MOA Department of Public Transportation

CHAPTER 6. Population and Employment Growth

Introduction

The overall scale and geographic distribution of population and employment are the primary drivers of transportation demand and determine travel patterns. Features and constraints such as coastlines, slopes, and stream corridors and established land uses have influenced the development in the Anchorage Bowl and the transportation patterns seen today. Because of the relationship between the distribution of housing and employment and expected daily travel patterns, inventorying existing and predicting future development are key to projecting future transportation demand. Estimates of where new housing units and new employment are expected to occur are important inputs to estimating the magnitude of daily travel that will need to be accommodated by the transportation system.

Identification of existing and future development is the key to projecting future transportation demand.

The MOA has developed a land use forecast that reflects where and how future land development will occur based on planning policies and development trends. Future forecasts are derived from a documented series of assumptions. These assumptions are based on the development policies and trends likely to occur during the forecast period. This chapter summarizes assumptions and results of the land use forecasts, the anticipated population and employment growth in Anchorage through 2025, and the projected patterns of new development. (For a more detailed description of the methodology used to forecast land use, see the MOA report *Anchorage 2025 Household and Employment Forecast and Allocation for the 2004 Long-Range Transportation Plan*, July 2004.)

The focus of the LRTP is identifying transportation improvements to meet the needs of the MOA in 2025. From the these development forecasts, estimates of magnitude and distribution of future land uses are used to project future trips and travel in the region.

Information Sources

The MOA and other planning entities use population, household, and employment growth projections prepared by the Institute of Social and Economic Research (ISER), University of Alaska Anchorage. Other sources for applicable statistics are the 2000 U.S. Census, a 2002 Alaska Department of Labor wage and salary employment database by specific street address, the 2002 Anchorage Household Survey (*Anchorage Household Travel Survey* by NuStats 2002), MOA building permit records, MOA Assessor parcel property files, and MOA land use planning maps and statistical databases.

Forecast Findings

Population, Housing, and Employment

Table 6-1 shows the population, household, and employment projections for the Southcentral region of Alaska, an area that includes the MOA and the Mat-Su Valley. The growth projections call for 37,000 new housing units and more than 35,000 new jobs within the MOA between 2002 and 2025. About 23 percent of the future MOA household growth is expected to be absorbed by Chugiak-Eagle River; primarily because large tracts of undeveloped land are available (based on the 1993 *Chugiak-Eagle River Comprehensive Plan).*

On a regional scale, job growth through 2025 is projected to occur predominantly in the Anchorage Bowl. The highest rates of residential (population and household) growth are anticipated in the Mat-Su Borough. According to Table 6-1, the Anchorage Bowl will add about 28,440 new housing units

Table 6-1. Projections for 2025 Regional Growth

Area	2002	2025 Forecast	Numeric Change	2002 – 2025 Growth (%)
Population				
Anchorage Bowl	237,160	302,330	65,170	28
Chugiak-Eagle River	31,540	58,870	27,330	87
Mat-Su Borough	65,800	126,600	60,800	92
Total	**334,500**	**487,800**	**153,300**	**46**
Households				
Anchorage Bowl	84,620	113,060	28,440	34
Chugiak-Eagle River	10,580	18,680	8,100	77
Mat-Su Borough	22,800	42,100	19,300	85
Total	**118,000**	**173,840**	**55,840**	**47**
Employment (includes self employed)				
Anchorage Bowl	150,660	186,570	35,910	24
Chugiak-Eagle River	3,980	7,190	3,210	81
Mat-Su Borough	13,700	24,200	10,500	77
Total	**168,340**	**217,960**	**49,620**	**30**

Notes:
The specific data for Chugiak-Eagle River and the Anchorage Bowl were derived from total MOA forecasts based on the 1993 *Chugiak-Eagle River Comprehensive Plan.*

Military base housing and population are included in the Anchorage Bowl figures.

Source: ISER data and projections in *Draft Land Use Forecast Report*, *Anchorage 2025 Household and Employment Forecast and Allocation for the 2004 Long-Range Transportation Plan*, prepared by the MOA Transportation Planning Division in July 2004.

and 35,910 new jobs by 2025. The rest of the region is expected to gain about 27,400 new housing units and only 13,710 new jobs by 2025.

Regional population growth through 2025 can be seen in Figure 6-1. The Mat-Su Valley will experience the most dramatic population growth (92 percent), followed by Chugiak-Eagle River (87 percent), and the Anchorage Bowl (28 percent).

Employment in both the Mat-Su Borough and Chugiak-Eagle River is expected to consist largely of local jobs to meet demand of the growing local populations. In 2025, the Anchorage Bowl will remain the dominant source of employment for the Southcentral region.

In the past few decades, the economy of the Mat-Su Borough has become closely linked to the MOA economy. That connection relies heavily on residents commuting from the Mat-Su Borough to employment in Anchorage. Chugiak-Eagle River residents also travel to Anchorage for jobs. All commuters from the Mat-Su Borough and Chugiak-Eagle River must use the Glenn Highway to get into the Anchorage Bowl. The expected number of commuters will continue to increase, and Figure 6-2 charts the projected Glenn Highway commuters from the Mat-Su Borough and Eagle River to employment sites in the Anchorage Bowl.

MOA Employment by Industry Sector

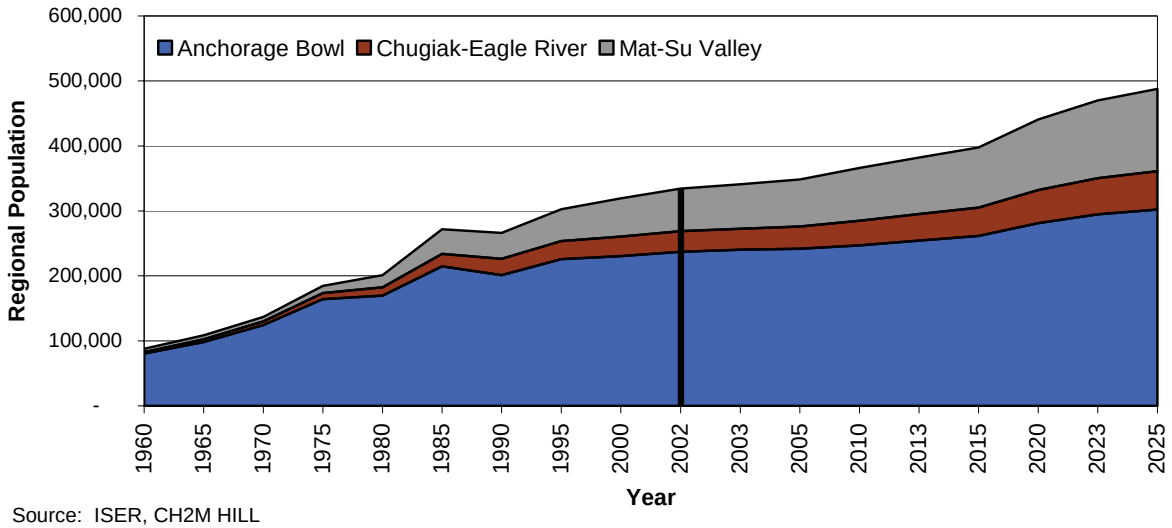
Estimating employment by industry sector is an important step in forecasting future travel demand. Each industry sector has characteristics relevant to choices that affect facility location and space requirements and are affected by applicable land use policies and regulations.

The Alaska Department of Labor recognizes 13 industry sectors:

- Health Services
- Universities
- Schools
- Government
- Services
- Finance, Insurance, and Real Estate
- Retail Trade

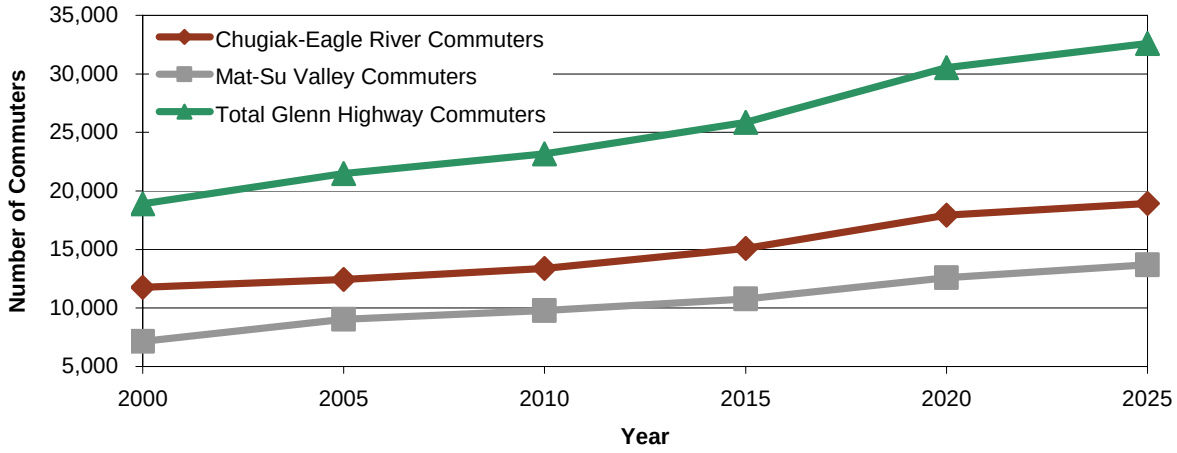
The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Figure 6-1. Regional Population Growth



Source: ISER, CH2M HILL

Figure 6-2. Projected Commuters from Chugiak- Eagle River and the Mat-Su Valley to Anchorage Employment



Source: 2000 U.S. Census and CH2M HILL

- Wholesale Trade
- Transportation, Communications, and Utilities
- Manufacturing
- Construction
- Mining
- Agriculture, Forestry, and Fisheries

Figure 6-3 charts the projected MOA growth in these industry sectors. The services and government sectors are the largest employers in Anchorage.

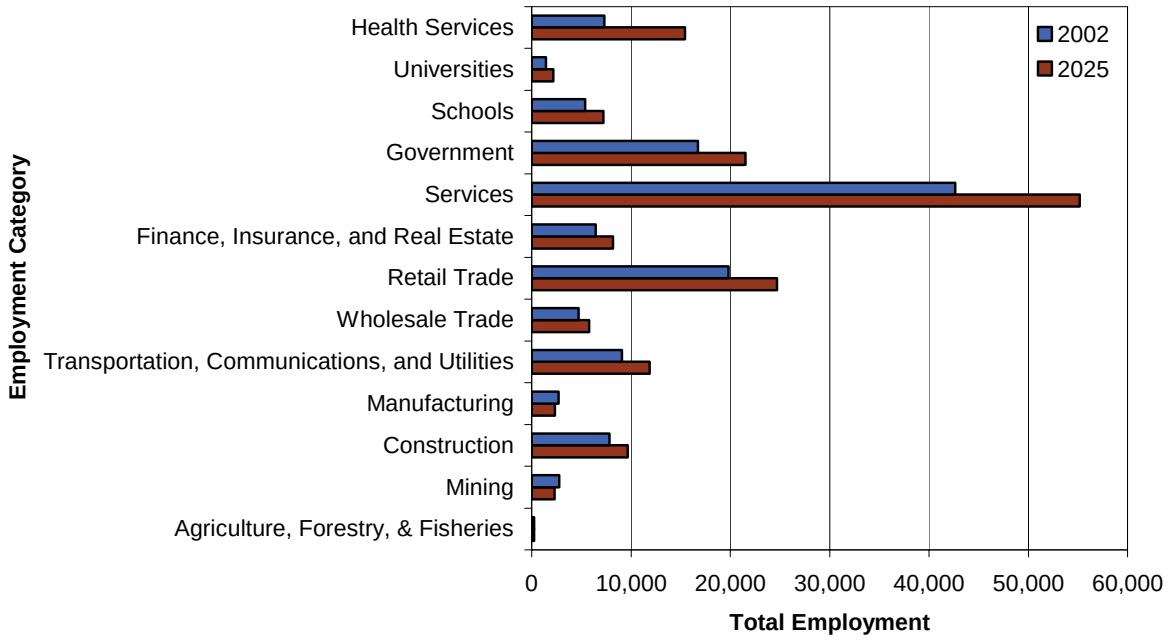
More than half of the total 2002 to 2025 increase in MOA jobs is attributed to employment gains in the health services sector and the services sector.

Distributing Anchorage Bowl Growth

Predicting the locations where growth in the Anchorage Bowl will occur relies on identifying and understanding current patterns and factors that limit or promote development. The existing urban form is a population approaching 240,000 (Anchorage Bowl only) spread out over 64,500 acres and living in primarily low housing density. The distribution of household density is shown in Figure 6-4. The average housing density per acre exceeds 10 dwelling units in only a few areas within the Anchorage Bowl.

Employment to a lesser degree also is dispersed. The downtown Central Business District, although a significant source of jobs, does not dominate employment or retail activity in the region. Other Anchorage Bowl areas with significant activity

Figure 6-3. Anchorage 2002 and 2025 Employment by Industry Sectors



Source: Alaska Department of Labor, and CH2M HILL

include the military bases, University-Medical District, Midtown, the Ted Stevens Anchorage International Airport (TSAIA) area, and the Dimond Mall. In general, Anchorage development reflects a dispersed pattern.

The density and pattern of development strongly influence the range of transportation solutions available to meet future transportation demand. One result of the dispersed land use development pattern is a "many-to-many" pattern of trip making to multiple centers. (Chapter 5 discusses the impacts of transfers and distance from transit corridors on travel by transit. Chapter 7 provides information about how employment and population distribution affect transit operations.)

Incorporating Anchorage 2020 Land Use Policies

Anchorage 2020, the official policy framework for guiding growth and development within the Anchorage Bowl, is expected to correct some shortcomings of the existing land use pattern. The intent of Anchorage 2020 is to create a city in which there will be more opportunities to live a less automobile dependent lifestyle by selectively increasing housing densities, consolidating employment, and encouraging mixed-use development to improve walkability within the Anchorage Bowl and to encourage bus and transit use. Housing density increases are specifically called for along four transit corridors; within seven town centers; and, in the three redevelopment areas near major employment centers. (Chapter 3 describes transit corridors, town centers, and redevelopment areas, and Figure 3-1 shows their locations.) New policies will help focus employment growth within the three existing major employment centers: Downtown, Midtown, and the University-Medical District.

Also influencing the locations and development of new housing and employment will be countless decisions made by landowners, developers, financial institutions, government agencies, homebuyers, prospective tenants, and business firms. Collectively, a total of between $8 billion and $12 billion (in 2004 dollars) will be invested in new housing and employment sites during the next 20 years. Despite the magnitude of investment, changes to the existing patterns of development and the urban form will be gradual.

Applying Land Use Allocations

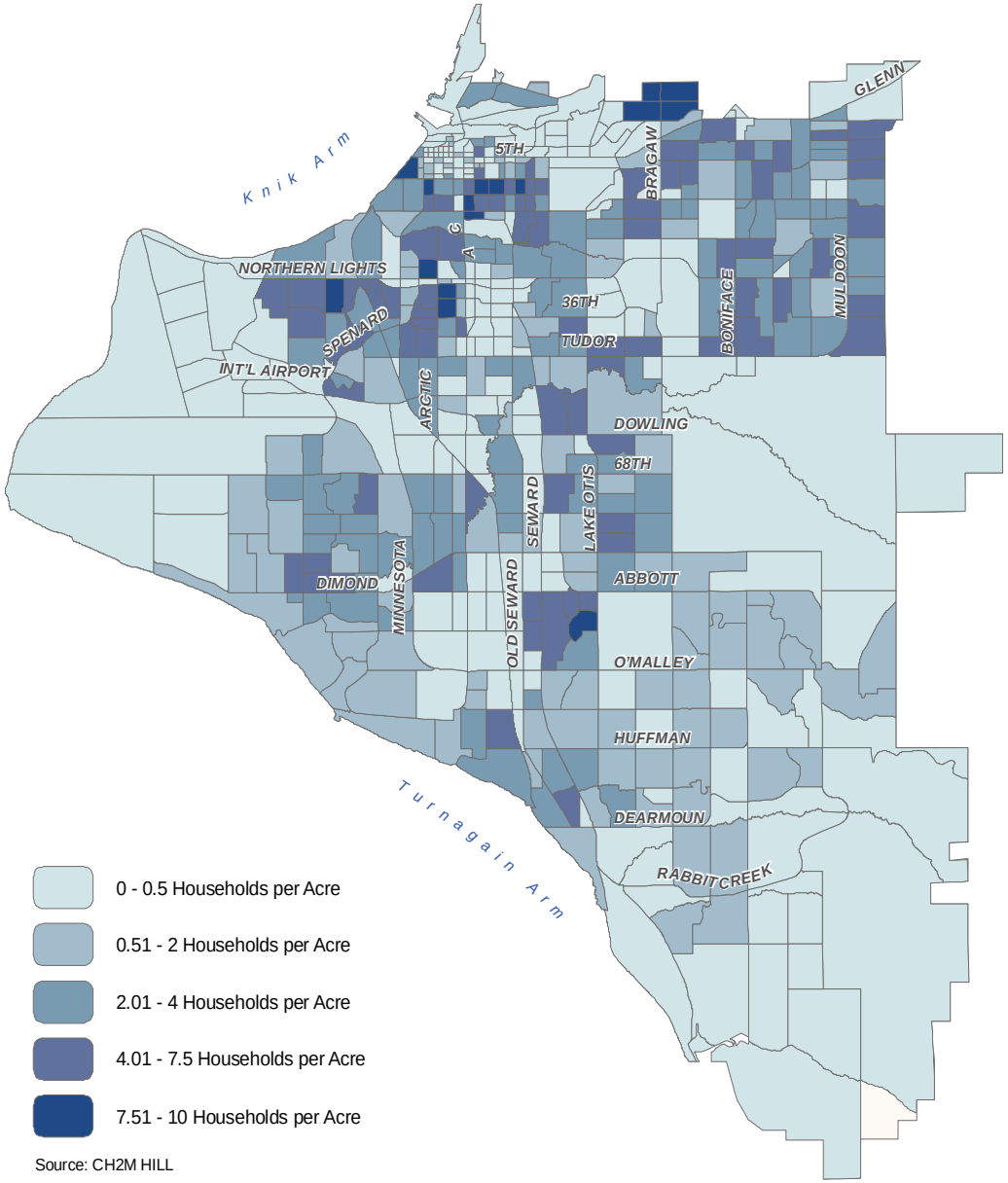
Anchorage 2020 called for changes in the development decision processes for future land uses within the Anchorage Bowl. Approximations of the Anchorage 2020 detailed development distribution were forecast by modeling factors affecting allocation. The land-use allocation model utilizes information about current land use,

economic trends, environmental conditions, and site availability. This model uses a set of systematic rules and careful accounting procedures to estimate future development locations and allocate new housing units and jobs for a range of land use types.

The 2025 Anchorage Bowl housing forecast is a shift from the current growth areas, south and central areas of the Anchorage Bowl, to the northeast and northwest planning areas (see Figure 6-5). Two major factors explain this change: (1) assumptions about higher densities in the Anchorage 2020 policy areas, town centers, transit corridors, and areas near the employment centers and (2) the combined effects of less vacant land in the southeast and southwest and more use of redevelopable land in the northeast and northwest.

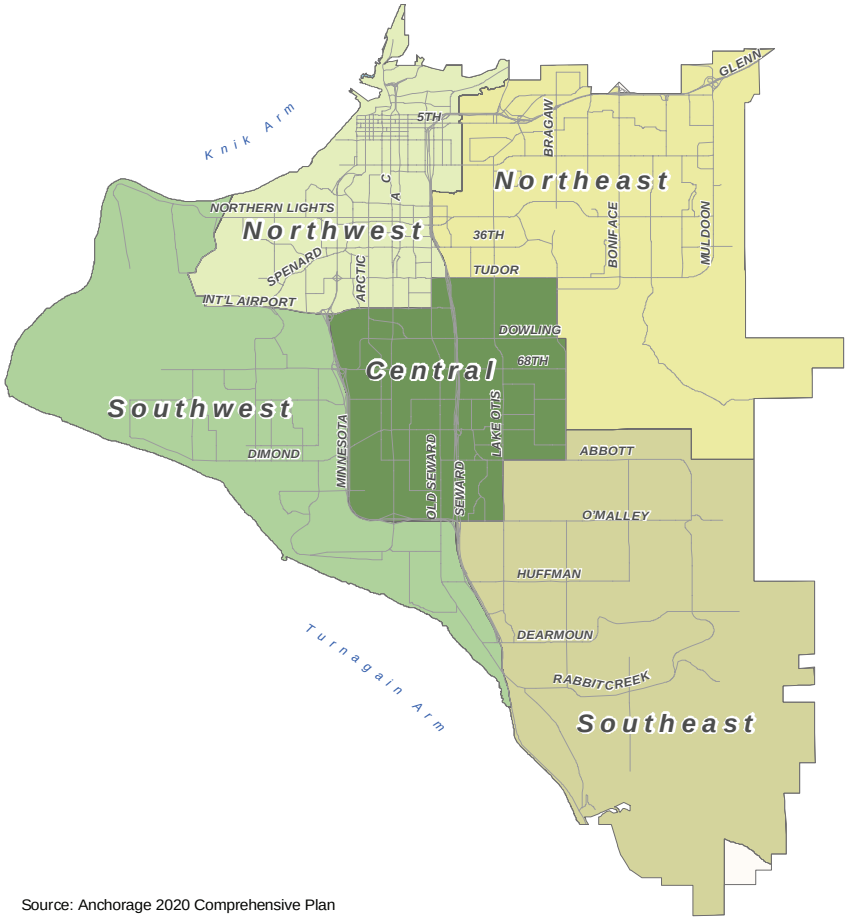
Table 6-2 shows housing growth by planning area, and Figure 6-6 shows further allocation into traffic analysis zones (TAZs). (The TAZs serve as the basis for predicting origins and destinations of travel with the transportation forecasting model.) Although existing areas of rapid development (such as Southport, Sand Lake gravel pits, the Abbott Loop areas, and subdivisions off Goldenview Drive) are predicted to continue to grow, a substantial amount of the future growth is projected to occur in and around town centers, transit-supportive development corridors, and redevelopment areas. For example, town centers are forecast to attract more than 3,300 new housing units during the next 20 years and accommodate about 12 percent of all new housing development in the Anchorage Bowl.

Figure 6-4. 2002 Household Density



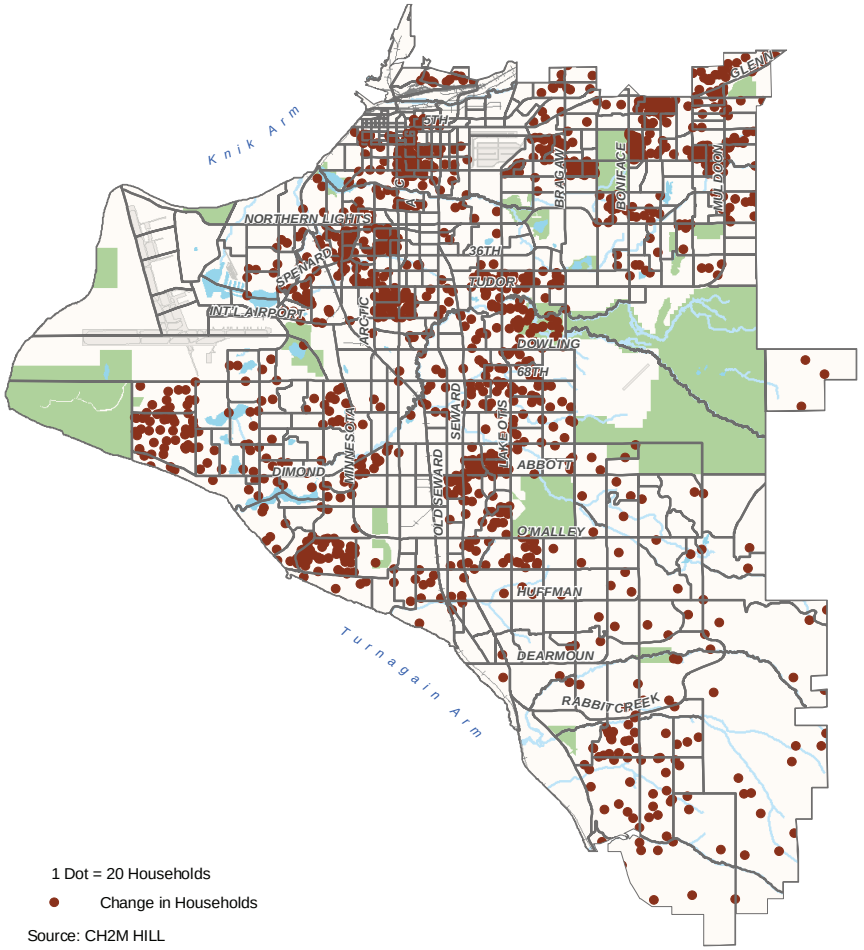
Source: CH2M HILL

Figure 6-5. Anchorage Bowl Planning Areas



Source: Anchorage 2020 Comprehensive Plan

Figure 6-6. Household Growth by Traffic Analysis Zone, 2002–2025



1 Dot = 20 Households

● Change in Households

Source: CH2M HILL

Table 6-2. Projected Household Growth by Planning Area, 2002–2025

Planning Area	Household Growth	Percentage of Total Growth
Central	5,090	14.2
Northeast	7,830	21.9
Northwest	7,520	21.0
Southeast	3,070	8.6
Southwest	4,180	11.7
Chugiak-Eagle River	8,100	22.6
Total	**35,790**	**100.0**

A substantial amount of housing also was allocated to the redevelopment areas identified in the Anchorage 2020 comprehensive plan. Residential areas in redevelopment areas near the three major employment areas (Downtown, Midtown, and the University-Medical District) is predicted to attract more than 3,120 new housing units, and an additional 1,000 housing units are forecast within the Central Business District of Downtown (in an area representing only a small part of the downtown redevelopment area identified in Anchorage 2020).

Housing development and increased household densities along the four transit-supportive development corridors (Arctic, DeBarr, Spenard/Jewel Lake, and Lake Otis) is also predicted. These corridors are expected to attract more than 14,000 new housing units.

Figure 6-7 illustrates that half of the employment growth from 2002 to 2025 is forecast to occur in the three major employment centers identified in Anchorage 2020. The largest amount of employment growth is allocated to Midtown, where more than 9,840 new jobs are projected by 2025 (17 percent of the total). Effects of this new development will result in more concentrated employment with densities closely matching the densities in Downtown. The higher employment density, combined with a more diversified mix of office and retail uses, will help to encourage carpooling and transit use in the midtown area, as well as to enhance the attraction of Midtown as an employment and retail destination.

A large share of the employment growth is projected to occur in the downtown redevelopment area, where the number of jobs is expected to increase by nearly 5,225 (13 percent of the total), 3,345 of which are in the Central Business District. Employment in the University-Medical District redevelopment area is expected to increase by nearly 3,310 jobs (7 percent of the total).

Considering the Knik Arm Crossing

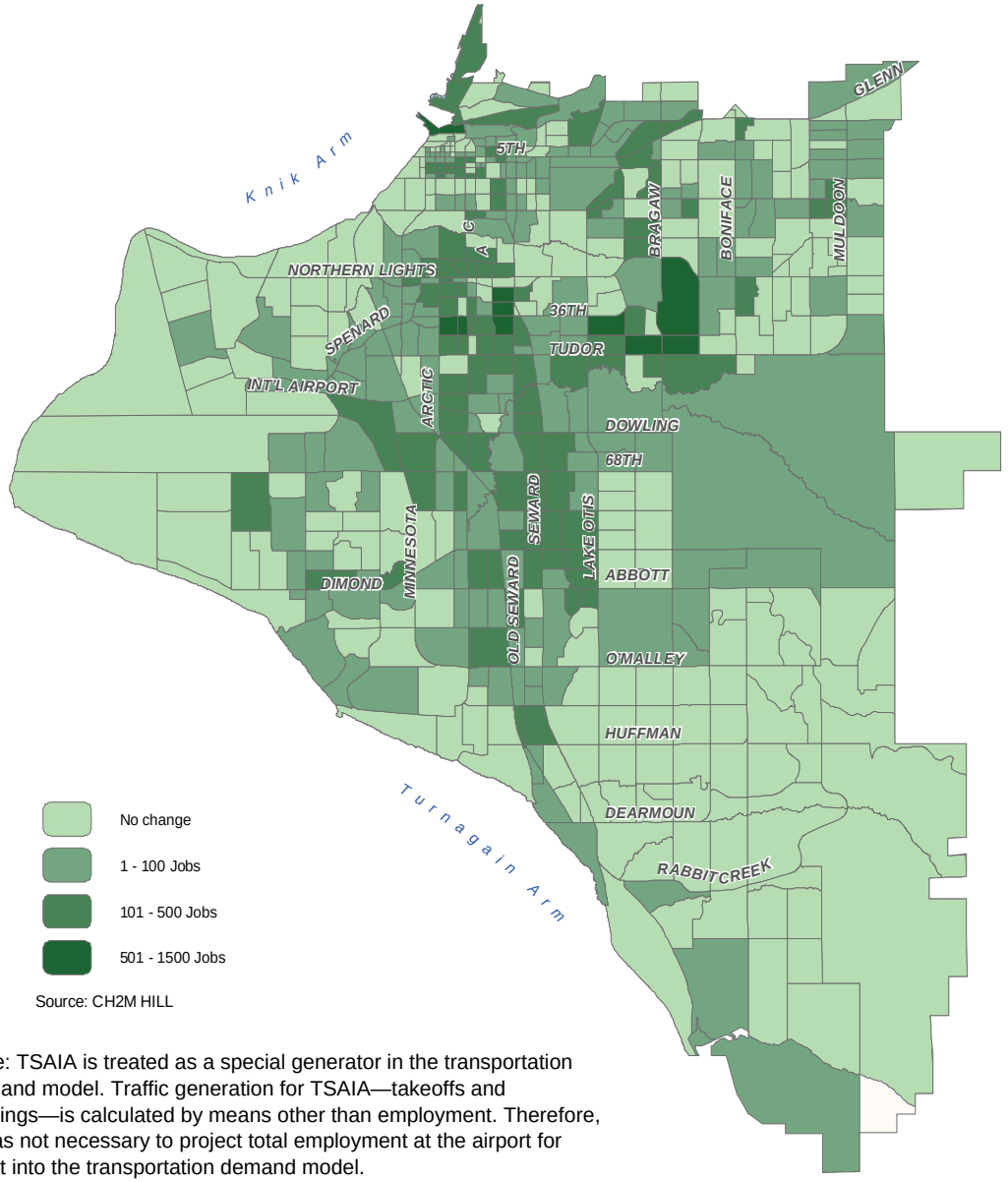
The projections shown in Table 6-1 and discussed in this chapter do not take into account the potential effects of a Knik Arm bridge on regional population and employment distribution. During preparation of the most recent ISER population and employment projections, a preliminary analysis was conducted to test the sensitivity of regional population and employment distribution to the opening of a Knik Arm crossing in the year 2009.

Results indicate that a bridge would reduce the growth of the Anchorage population by about 19,000, or 5 percent, by 2025. This shift would start slowly and increase in the later years of the planning period, closer to 2025. Opening a Knik Arm bridge likely would have less effect on employment growth in Anchorage, with about 6,000 jobs expected to go elsewhere in the region.

It should be noted that the change in growth rates is very sensitive to the year that the bridge is opened. The date is uncertain and subject to many variables. Population and employment changes that could result from the Knik Arm bridge will be analyzed as part of the Environmental Impact Statement for the project. Depending on findings, the Knik Arm crossing may be considered for a subsequent amendment to the LRTP.

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Figure 6-7. Employment Growth, 2002–2025



Source: CH2M HILL

Note: TSAIA is treated as a special generator in the transportation demand model. Traffic generation for TSAIA—takeoffs and landings—is calculated by means other than employment. Therefore, it was not necessary to project total employment at the airport for input into the transportation demand model.

Summary

The Southcentral region covering both the MOA and the Mat-Su Borough will become an urbanized region with a population approaching 500,000 by 2025. Suburban population is growing more rapidly in the Mat-Su Borough and Chugiak-Eagle River than in the Anchorage Bowl, and employment growth is forecast to occur predominantly in Anchorage. The growth of suburban residential uses portends longer trips and heavier future commuting into and within the Anchorage Bowl, particularly around areas of high employment growth, such as Midtown.

The 2025 land use forecast shaped by the Anchorage and Chugiak-Eagle River planning policies results in an estimated 400,000 more weekday trips on the transportation system than occurred in 2002, a 40 percent increase. Trips will be somewhat longer in length because more trips will be linked to suburban locations.

The next issue is how well the transportation infrastructure sustains reasonable mobility and access under the higher future demand. What transportation investments will be needed to support mobility and economic vitality of the region? Chapter 7 addresses these questions.

CHAPTER 7. Meeting Future Transportation Needs

Introduction

Anchorage in 2025 will be a different city than Anchorage today. The picture of Anchorage 2025 emerges from the economic forecast in Chapter 6 and the addition of new households and employment sites. The 2025 picture reveals these broad characteristics:

- An urban region encompassing Anchorage and the Mat-Su Borough with a population approaching 500,000
- Increasing shares of the Anchorage population in suburban settings
- Addition of 92,000 new MOA residents since 2002, 65,000 of them within the Anchorage Bowl
- Continuation of Anchorage's role as the dominant population and employment center for the region and Alaska
- Tighter clustering and higher densities of development along transit corridors and in employment districts and town centers

In 2025, 400,000 more daily trips will vie for space on the Anchorage transportation system than did in 2002.

Daily travel continues to grow because of steady growth in Anchorage and the surrounding areas. Travel miles also escalate, not only because more trips are being made every day but also because a larger share of trips extend longer distance from suburban locations.

How well will our transportation system work in 2025? What improvements may be necessary and desirable? What happens under different hypothetical future scenarios such as doing nothing, greatly expanding transit service, adding road capacity, and connecting more trails and pedestrian facilities? What investments would be most effective? How will neighborhoods, safety, air quality, health, and the natural environment be affected?

This chapter seeks to determine answers to these kinds of questions. Its purpose is to report findings gleaned from analysis of a broad range of transportation plan alternatives so that choices can be understood and community decisions made.

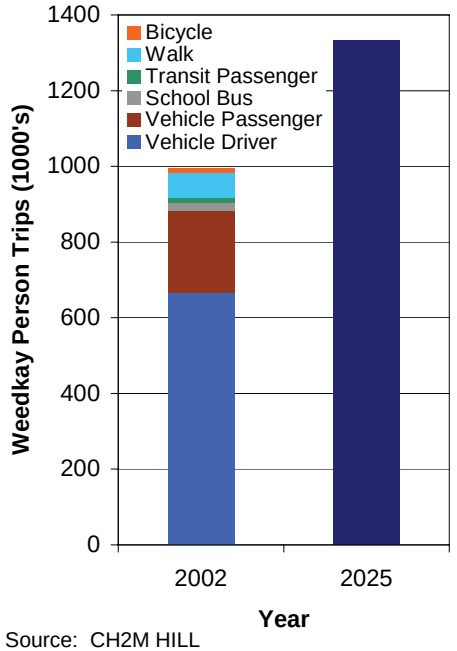
The Travel Demand Challenge

Figure 7-1 shows daily trips by mode in 2002 and the projected total trip demand expected in 2025. These daily trips, now and in 2025, show the mobility needed to sustain daily activity in Anchorage. The transportation system must be adequate to serve these needs.

Methods to Analyze and Evaluate Transportation Systems

During preparation of the LRTP, the Anchorage travel model was the chief analytical tool. The model integrates the information from many subset models that were used to forecast future travel,

Figure 7-1. Weekday Trips, 2002 and 2025



Source: CH2M HILL

delineate possible transportation systems, allocate travel to models and specific routes of the road and transit network, and evaluate how well transportation systems would work. Starting with the forecast of land use growth and where homes and jobs will be located, these models sum the trips made by all people, businesses, and freight movers and then determine how that travel will affect a candidate transportation system.

To verify that the computer models are realistic, they were first executed for current conditions and compared against independent information for accuracy. See *AMATS Travel Model Update and Validation Report* (CH2M HILL, 2004) for more information about the LRTP travel model.

Other analytical tools included mapping and various tabular presentations capable of displaying information about transportation system performance, and examining how travel and transportation systems may affect surrounding neighborhoods, communities, and the natural environment. Such methods permit comparison of results by location and impact topics.

Formulating Possible Future Transportation Alternatives

Transportation investments can be deployed in many ways to shape the Anchorage transportation system during the next 20 years. Funding public transportation could be emphasized to reduce road building and traffic. The highest priority could be roads and reducing vehicle congestion, or the top-ranking objective could be land use policy and strategy changes to minimize transportation impacts and needs.

The LRTP models and procedures focused on addressing all of these possibilities by providing balanced transportation planning. By delineating public transportation systems and separately creating road project combinations each with successively larger scope and investment, the results and ability to meet LRTP goals and objectives were assessed.

Analyzing Candidate Scenarios

Scenarios consisting of specific public transportation plans and specific road improvements were analyzed with the LRTP travel model. Several scenarios emphasizing transit with limited road improvements were processed and evaluated with the model to see how much travel could be attracted to larger public transportation systems and investments. Then scenarios with successively larger road cases and a transit case were processed to address capacity deficiencies and congestion. Each successive scenario and LRTP model run sought to improve the performance and cost effectiveness of the transportation system. In addition, three future scenarios for allocation of development and the associated population and employment growth were processed through the travel models to gauge their effects on transportation needs.

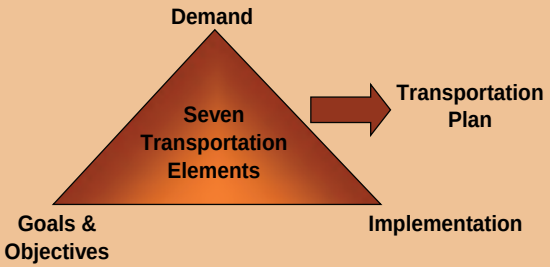
Evaluating and Comparing Alternatives

The outputs from the travel model and findings from the use of mapping and other supporting analytical tools provided information about the following:

- Transportation system performance
- Traveler mode selections
- Accessibility and connectivity
- Impacts, including air quality and noise
- Effects on communities and the environment

Consequently, extensive performance data for each candidate scenario were compiled. Information included travel demand, roadway

How Evaluation Integrated Goals, Needs, and Performance

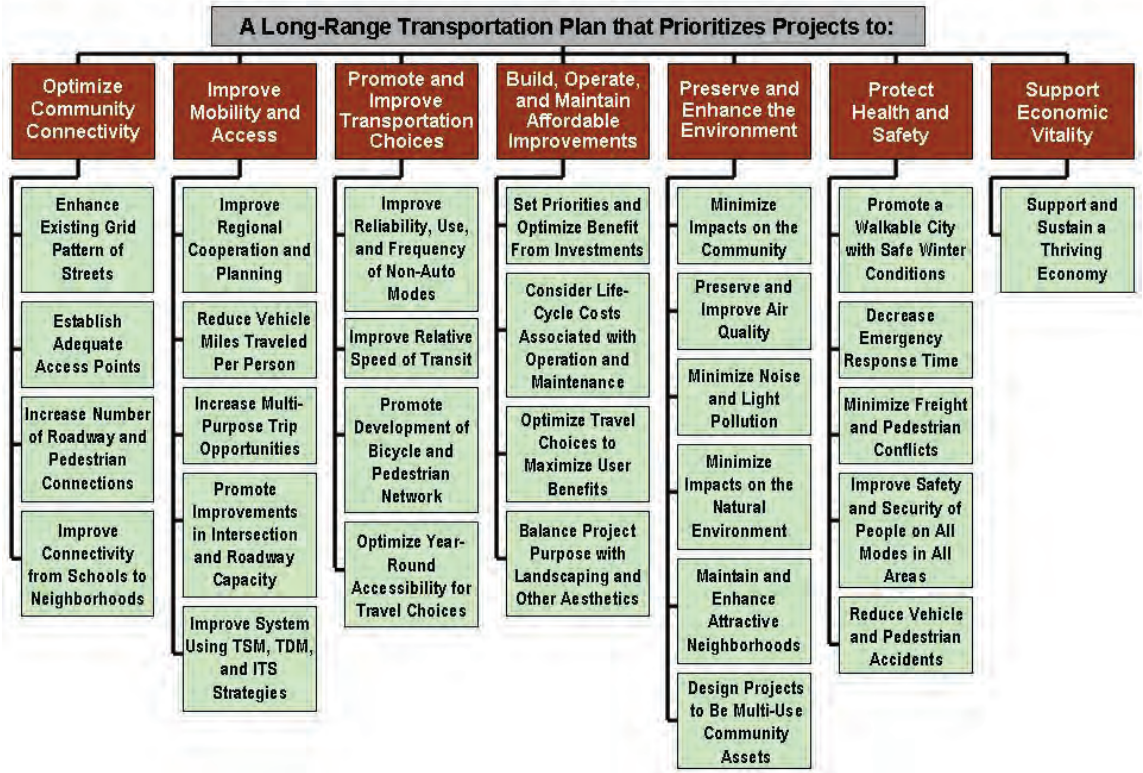


The evaluation process aligned the technical data from the candidate scenario analysis with the goals and objectives articulated for the LRTP and Anchorage 2020. The citizens' Roundtable Committee assisted the LRTP team in developing the goal structure and formulating value weightings to reflect the relative importance of each goal and objective.

projects assumed for implementation, and performance of transportation modes other than the automobile. Figure 7-2 shows the structure of the LRTP goals and supporting objectives created by the LRTP Roundtable Committee. (See Chapter 3 for a discussion of LRTP goals and objectives.) Performance measures were identified for each goal and objective to assess how each transportation scenario would perform with respect to the community goals and objectives.

The performance data were extracted from the travel model output and summarized into an evaluation matrix (Figure 7-3) that compares the relative merits of each candidate scenario. These evaluation procedures were applied to many different possible transportation system cases. Specifically, the performance measures in Figure 7-3 guided and shaped development of recommendations. The findings and results are reviewed in the following sections. Solutions to meet transportation system needs are reviewed for each of the seven system elements—roads, public transportation, pedestrian facilities, bicycle system, freight distribution, regional connections, and congestion management.

Figure 7-2. LRTP Goals and Objectives



Roads

Evaluating Road System for Deficiencies

Our roads, by far the most visible and largest component of the transportation system, are the backbone of the entire transportation infrastructure. They are universally used by everyone. Roads get our children to school, commuters to work, transit riders to destinations, and freight to stores. The roadway grid enables movement for many modes of travel—walking, biking, automobile, truck, and transit.

Ongoing actions to maintain and improve our roads are undertaken through MOA general obligation bonds and AMATS programming of local, state, and federal funds. The planning process identifies necessary improvements and creates a priority schedule for implementing them.

The existing road system is the cumulative legacy of planning, operating, expanding, and building new segments during many decades. It is directly linked to land development because subdividing indelibly defines the spacing, type, and size of highway corridors and facilities. In a similar sense, the traffic volume "demand" on the existing road system results from the cumulative increase in travel that has accompanied a doubling of the

Anchorage Bowl population from 124,400 in 1970 to 237,200 in 2002. Many planned improvements identified in prior LRTPs have not been implemented; consequently, the operating performance of today's road network reflects the lag in implementing planned projects.

Road Network Structure and Function

Road networks have a logical hierarchical structure, much like many other entities in nature—rivers, creeks, streams and brooks, or tree trunks, limbs, branches, and twigs. The road hierarchy is driven by two primary roles: serving travel mobility and providing abutting land access. Figure 7-5 maps the functional street classification structure for existing roads in Anchorage. Road classifications (Table 5-1) and factors affecting efficient flow of traffic are described in Chapter 5.

Design and Policies Associated with Road Classification

Functional street classifications reflect both the character of service provided and physical design features of a roadway. Street classification does not exist in a vacuum; it is the first link in a chain that connects important development principles and operational policies. Functional classification principles and policies guide standards for planning, physical design, operation, and adherence to context sensitivity with land use and other community features.

The MOA *Official Streets and Highways Plan,* updated in 1996, identifies the functional road classifications. This guidance document predates more current planning documents. It will be refreshed in conjunction with this LRTP. It needs to integrate contemporary best practices that have been identified for context-sensitive design. And it should consider the Anchorage 2020 characterizations of community land use and street configurations.

Figure 7-3. Sample of the Evaluation Measures Matrix

Goal	Description	Objective	Performance Evaluation Measures
(10.7%) Goal 3: Transportation Choices	Provide a balanced transportation system that provides viable transportation choices among various modes.	1. Improve the reliability, use and frequency of non-auto modes of travel.	Transit use - Total weekday transit trips.
			Shared Use - Total number of Daily Home-Based-Work trips using Shared Use vehicles only.
		2. Improve the relative speed of transit compared to automobile travel through the use of innovative technologies.	Transit/auto travel time ratio - Travel time to/from selected locations in the PM peak hour.
		3. Promote the development of a continuous, safe network of bicycle and pedestrian trails and sidewalks that provide access to work, schools, parks, services, shopping and the natural environment.	Additional bike network - Number of miles of additional bike facilities.
		4. Optimize the year-round accessibility to, and convenience of, travel choices.	Transit availability - Employment opportunities accessible by transit within 20 minutes.
(8.3%) Goal 4: Build, Operate and Maintain Quality, Attractive, and Affordable Improvements	Develop an attractive and efficient transportation network that takes into account the cost of building, operating, and maintaining a system that considers the equity of	1. Prioritize the projects within the LRTP to optimize the overall capital costs associated with each project.	LRTP Capital Costs.
		2. Improve the relative speed of transit compared to automobile travel through the use of innovative technologies.	LRTP Operation and Maintenance Costs.
		3. Optimize the travel choices transportation	

Road Network Grid Spacing

A road system works best when the street grid does not have missing links and when the street

system is spaced properly. Figure 7-4 illustrates missing grid links in the primary road network in Anchorage.

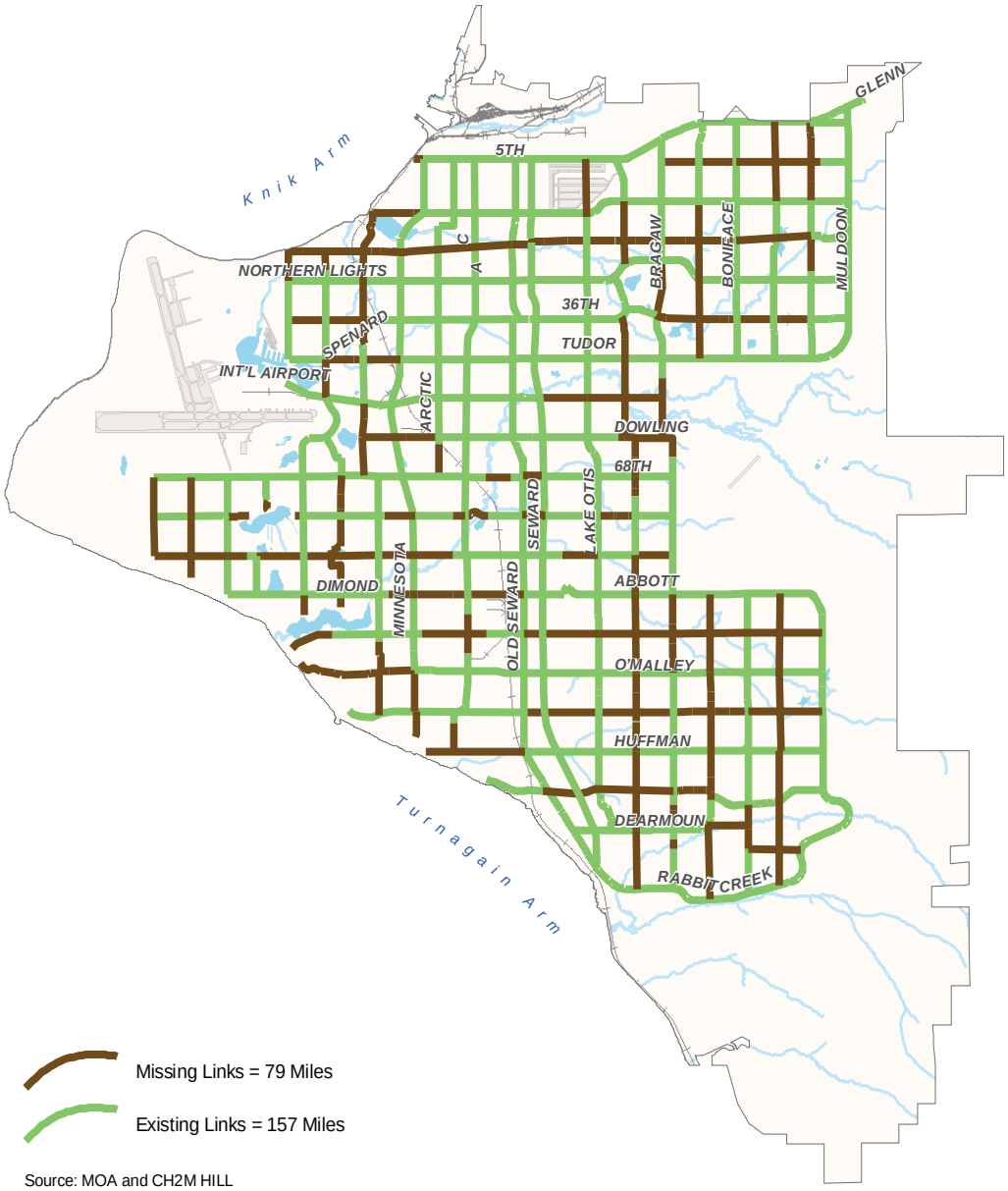
Benefits that would accrue from a more complete street grid network in Anchorage include minimizing out-of-direction (excess) travel; improving connectivity for walking, biking, and transit access; and providing more accessible routing for transit service. A grid network more evenly distributes the travel load and spreads over multiple roads the burden of carrying it. Spreading vehicle traffic over a greater number of roads would reduce the traffic growth experienced on some existing routes. Consequently, some roads may not need to be made wider, which also makes them more amenable to walking and transit use. Large-block land areas in Anchorage without roads (such as parks and airports) and wide spacing of major arterials place a tremendous strain on fewer widely spaced roads and intersections to carry the travel demand. Such concentrated travel demand often occurs in employment areas, as well as higher density residential areas.

Road Improvements

Potential road improvements considered in LRTP development are grouped into categories or tiers.

In Progress. Road repair, rehabilitation, and improvement is a continuous process. The MOA and the State of Alaska identify, program, and fund the process in an ongoing 6-year Transportation Improvement Program (TIP) that is updated every

Figure 7-4. Missing Links in the Anchorage Road Network



Source: MOA and CH2M HILL

2 years. The MOA performs a similar exercise for its road bond program (the Capital Improvement Program [CIP]). Projects in the TIP and CIP are the first tier of improvements programmed for the road system.

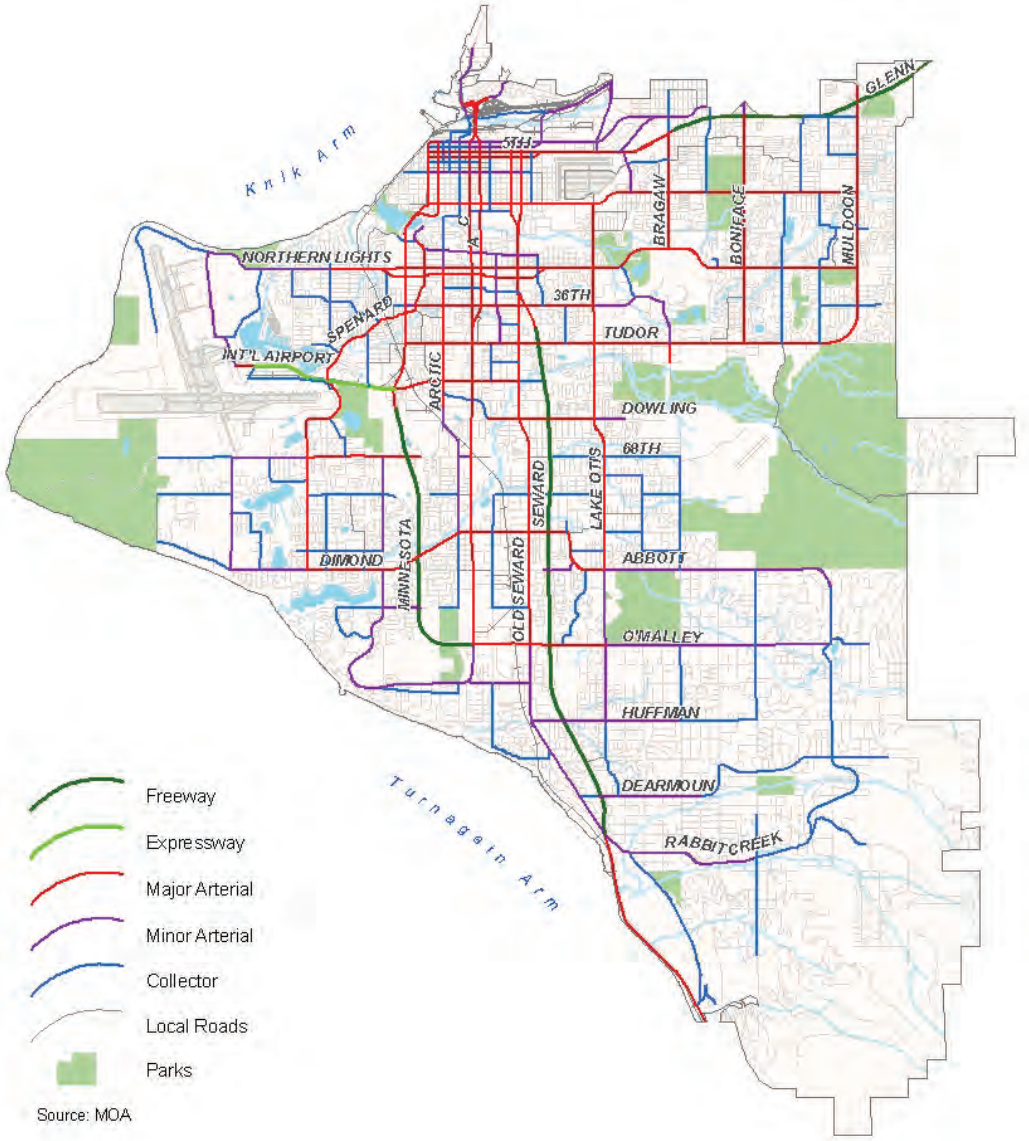
In addition to funded TIP and CIP projects, several large projects proposed for Anchorage have been advanced in significant environmental impact and preliminary engineering analyses. These projects include the Glenn Highway between McCarrey Street and the Ingra-Gambell streets couplet, the Seward Highway from Rabbit Creek Road to 36th Avenue, a Dowling Road extension from Old Seward Highway to Raspberry Road at Minnesota Drive, and the Bragaw Street–Abbott Loop Road connection.

Collectively, existing roads plus the TIP, CIP, and major investment study projects are termed "the existing and committed road network" shown in Figure 7-6.

Identified in Past LRTPs. LRTPs for Anchorage are updated every 3 years. Figure 7-7 shows the road improvement projects identified in the most recent (2003) LRTP. (Because the LRTP updated in 2003 addressed improvements through 2023, it is referred to in the following pages as the 2023 LRTP. This LRTP, prepared in 2005, focuses on a planning horizon of 2025.)

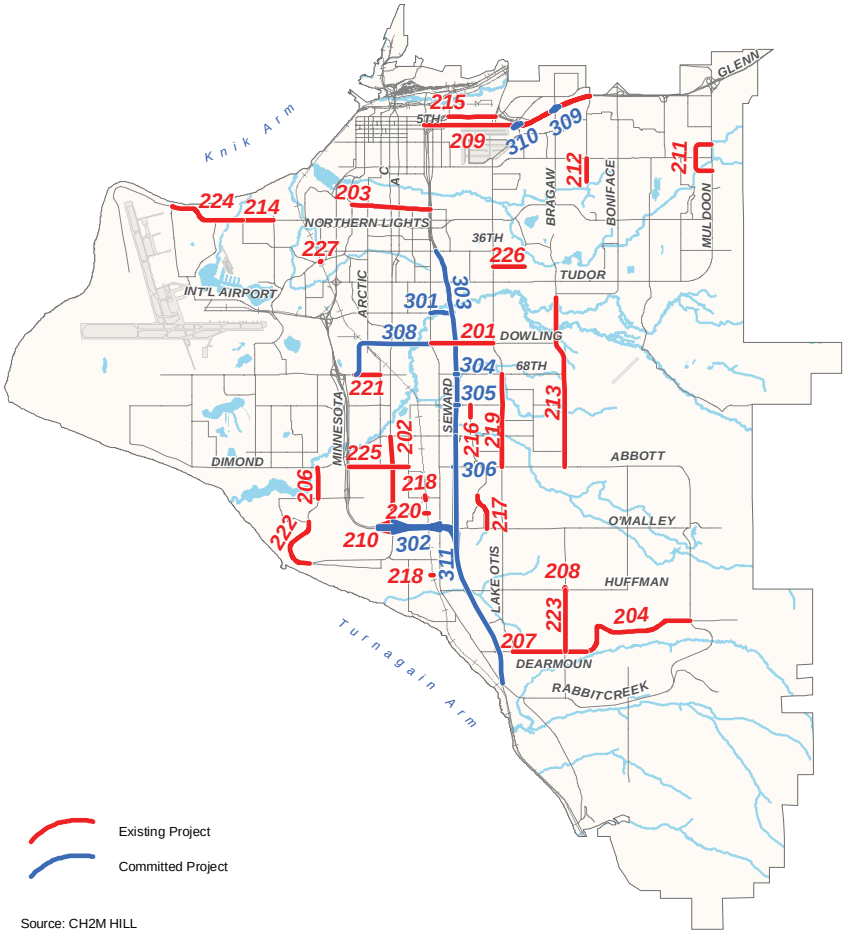
In the 2023 LRTP, two sets of projects are identified: "near-term" projects anticipated to be implemented between 2004 and 2013 and "long term" projects programmed for 2013 to 2023. The

Figure 7-5. MOA OS&HP Functional Street Classifications of Anchorage Roads



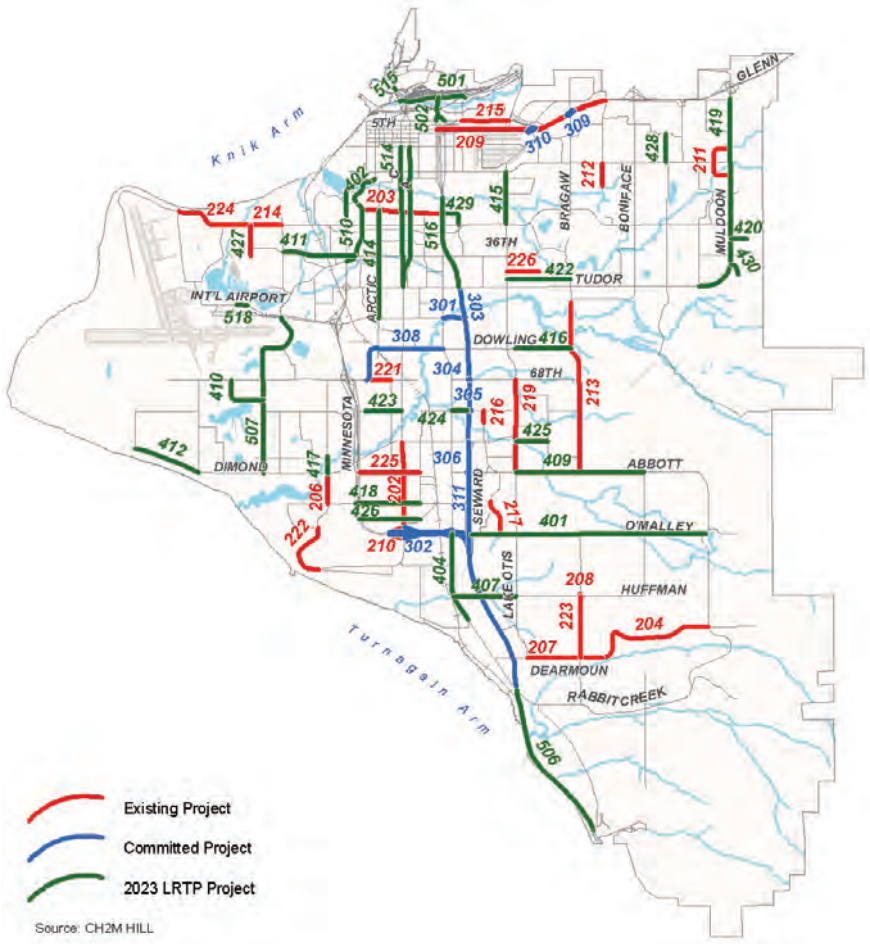
Note: The functional classifications shown are from the 1996 Official Streets and Highway Plan of the MOA. Separate classifications apply for all state roads, which are identified as DOT&PF roads in Figure 5-2, "Road Ownership."

Figure 7-6. Existing and Committed Road Network Projects



The numbers on the map identify specific projects considered.

Figure 7-7. 2023 LRTP Projects



The numbers on the map identify specific projects considered.

TIP projects and environmental study projects described above are included among the "near-term" LRTP projects.

Projects identified in previous LRTPs are the initial building blocks for the 2025 Anchorage LRTP. But are all of them needed? Will they be sufficient to assure satisfactory mobility to meet future needs? These questions are answered in the series of "what if" analyses of candidate scenarios described in the following paragraphs.

Zeroing In on Future Road Deficiencies

As Anchorage evolves toward 2025 (and the regional population approaches 500,000), travel growth will put more traffic and stress on the transportation system. Gauging where that stress will occur and its intensity is the challenge, and the goal, in framing LRTP improvements.

Possible scenarios of future road networks with specific road improvement projects were created as "what if" cases. Each scenario was evaluated by using the Anchorage travel model to forecast future 2025 travel by mode and then route vehicle trips over the scenario road network to determine traffic volumes on each road segment. Traffic conditions were determined for three time-of-day periods, 7 to 9 AM, 3 to 6 PM, and all other hours. Mapping and statistical evaluations for each scenario outcome yield a comprehensive assessment of how well it would meet future travel demand and possible community, environmental, physical, and other impacts.

No-Build Scenario

A worst-case scenario was defined: It assumes only the existing 2002 road network is available to serve future travel, that no road or transit improvements are implemented. This extreme worst case was examined to help identify where potential road deficiencies would occur and how bad they might be. The orange and red road segments in the illustration of this scenario (Figure 7-8) indicate where severe traffic overload and congestion would occur.

Performance statistics for this 2025 no-build scenario define more specific implications. Driver hours spent in severely congested traffic would increase to more than six times the hours for existing (2002) equivalent conditions. Approximately 28 percent of all freeway network miles and 19 percent of major arterial miles would be operating at unsatisfactory levels of service during peak periods.

Fortunately, the no-build scenario is hypothetical because funded TIP and MOA bond improvements are being implemented. It would result in clearly unacceptable mobility conditions by 2025. Nonetheless, the findings help identify where future problems may be expected. (See Figure 7-8.)

Existing and Committed Road Projects Scenario

The collective TIP, MOA CIP, and major study capital improvements projects will cost nearly $800 million (in 2004 dollars) when implemented. The existing road network and these projects were delineated into an "existing plus committed" scenario. The illustration of how this scenario might perform (Figure 7-9) shows severely overloaded and congested conditions (orange and red segments) in 2025. Statistical results are summarized in Table 7-1.

Severe congestion problems for the committed projects scenario are mostly in the Central and East Anchorage planning areas. The Glenn Highway east of Airport Heights, the axis of the Ingra-Gambell streets couplet from 5th Avenue through 6th Avenue, Tudor Road from Boniface Parkway to Minnesota Drive, and the Boniface Parkway are especially affected. Other north-south and east-west arterial streets in East Anchorage are overloaded as well, although less severely.

Other roads that perform unsatisfactorily are International Airport Road access to Ted Stevens Anchorage International Airport (TSAIA), segments of Dowling Road, and segments of the Bragaw Street–Abbott Loop Road connection. Rabbit Creek Road shows modest overloading.

All Project Improvements Proposed in 2023 LRTP Scenario

A second 2025 scenario included all improvement projects proposed in the 2023 Anchorage LRTP. (See Figure 7-7 for road projects map). The illustration of road segment performance for this scenario in terms of available capacity to traffic ratio (Figure 7-10) again show overloaded and congested conditions (orange and red segments) in 2025.

Figure 7-8. Total Daily Performance of "No-Build" 2002 Road Network in 2025

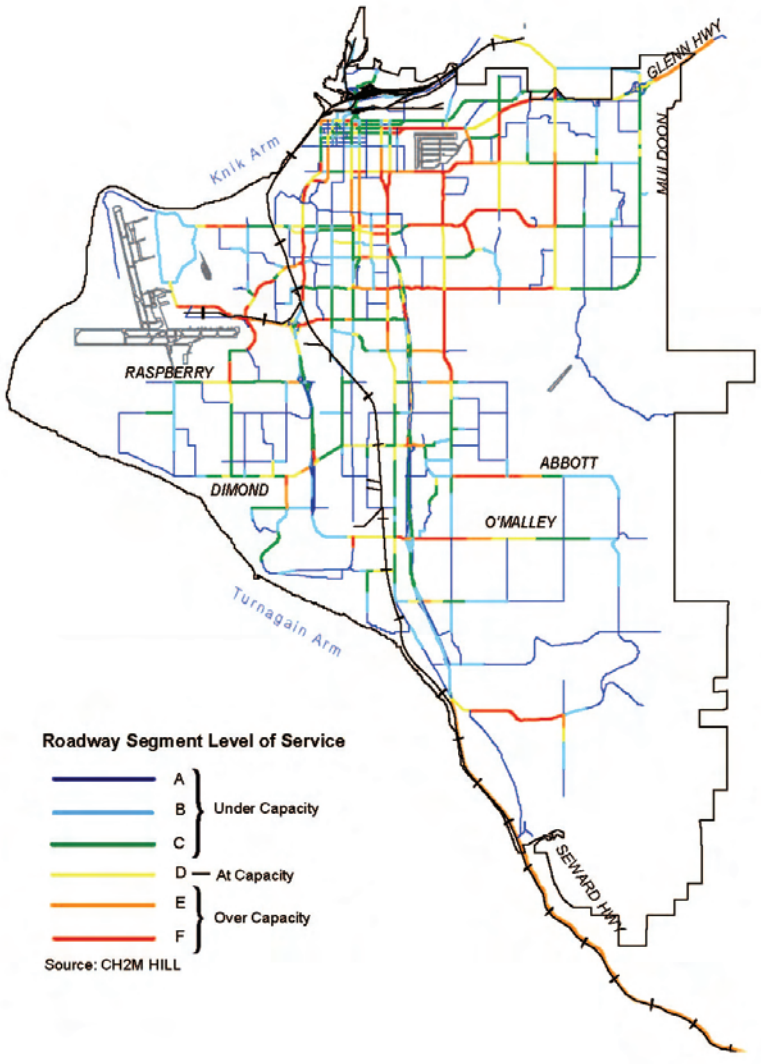


Figure 7-9. Total Daily Performance of Existing Plus Committed Projects in 2025

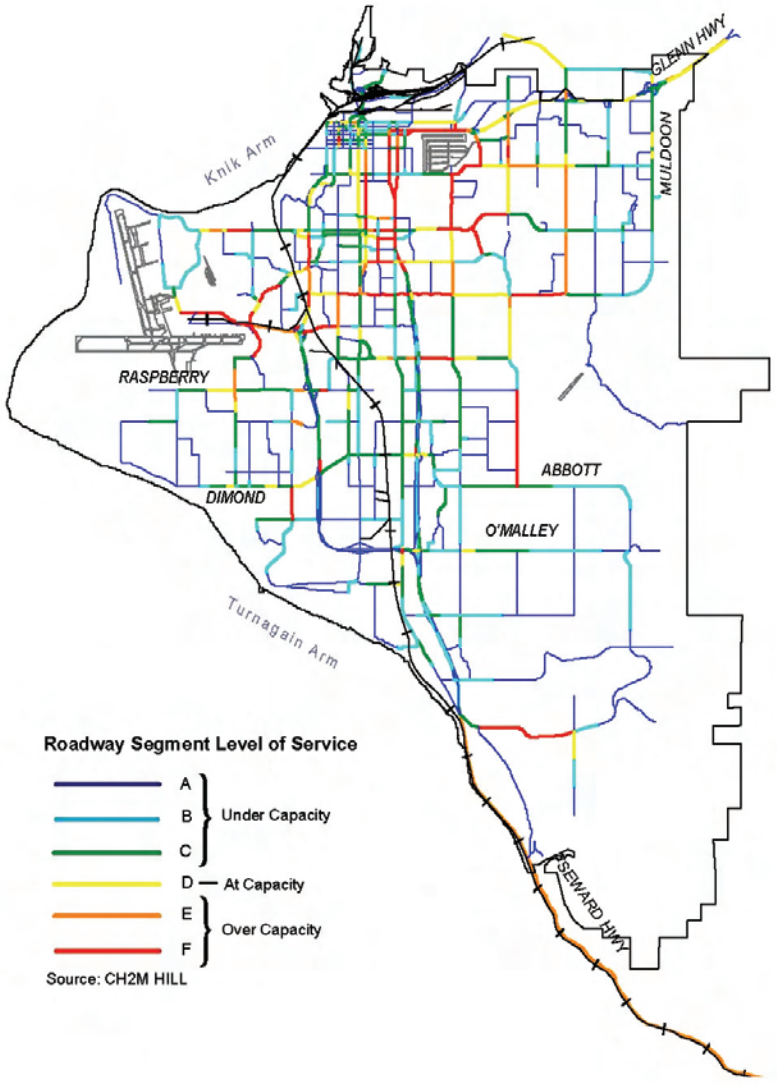


Table 7-1. Performance of Existing, No-Build, and Planned Project Scenarios

Feature	Scenario			
	2002 Road Network, 2002	No-Build 2002 Road Network, 2025	Existing and Committed Road Projects, 2025	2023 LRTP Improvements, 2025
Vehicle miles of travel in severe congestion	143,680	677,950	487,170	455,150
Traveler hours spent in severe congestion	4,420	27,255[a]	23,330	18,330
Congested freeway miles				
Morning peak period	2%	31%	25%	25%
Afternoon peak period	4%	29%	27%	27%
Congested arterial miles				
Morning peak period	8%	28%	22%	21%
Afternoon peak period	23%	31%	24%	21%

The patterns and locations of congested, overloaded road links for the 2023 LRTP scenario is much the same as was observed for the existing plus committed scenario. Serious problems are most concentrated in Central and East Anchorage, and results for South Anchorage are similar to those described for the existing plus committed scenario.

Table 7-1 provides summary performance statistics and comparison to other scenarios. The performance findings for the 2023 LRTP scenario show relatively modest improvement over the previous scenario.

Analysis of Deficiencies

Neither the committed projects scenario nor the 2023 LRTP projects scenario is adequate to meet 2025 needs. Many projects in both scenarios are in South Anchorage. As a result, road network performance there is generally good. Elsewhere however, some overloaded road segments are severely overloaded. The principal congestion and mobility deficiencies unresolved by the existing and committed scenario and the 2023 LRTP scenario are discussed below.

Glenn Highway Corridor

Rapid growth in Chugiak-Eagle River and the Mat-Su Valley results in near doubling of daily traffic entering the Anchorage Bowl along the Glenn Highway corridor. At the west end of the freeway corridor, near Merrill Field, arterial street capacity is grossly inadequate to handle the heavy freeway traffic volume. Severe congestion and backed up traffic cause many drivers to shift off the Glenn corridor to avoid slow-moving traffic and delay. The spillover to other city streets compounds the traffic burden on most East Anchorage arterials—DeBarr Road, Northern Lights Boulevard, Boniface Parkway, and Lake Otis Parkway. Requests for neighborhood traffic calming demonstrate congestion impacts.

Ingra-Gambell Streets Couplet and Seward Highway Corridor

Seward Highway is the dominant north-south traffic corridor in the Anchorage Bowl. North of 36th Avenue, the highway transitions into an arterial street, eventually evolving into the Ingra-Gambell streets arterial couplet. Very heavy traffic volume at 36th Avenue, overwhelms the arterial portion of Seward Highway and the Ingra-Gambell streets couplet farther north. A virtual traffic blockage occurs in an "L-shaped" area from the Glenn Highway at Airport Heights to Ingra-Gambell Street and then down the couplet and Seward Highway to 36th Avenue. Congestion brings north-south traffic to a standstill and creates a barricade for east-west traffic. Drivers move to alternative routes to avoid getting caught in the gridlock (Figure 7-11).

East Anchorage Arterials

DeBarr Road, Northern Lights Boulevard, and Tudor Road, the major east-west arterials routes in East Anchorage, are spaced at 1-mile intervals. North-south arterial spacing is also 1 mile between Lake Otis Parkway, Bragaw Street, and Boniface Parkway, but 1.5 miles between Boniface Parkway and Muldoon Road. Because Bragaw Street is discontinuous through the University area, south of

Figure 7-10. Total Daily Performance of 2023 LRTP Projects in 2025

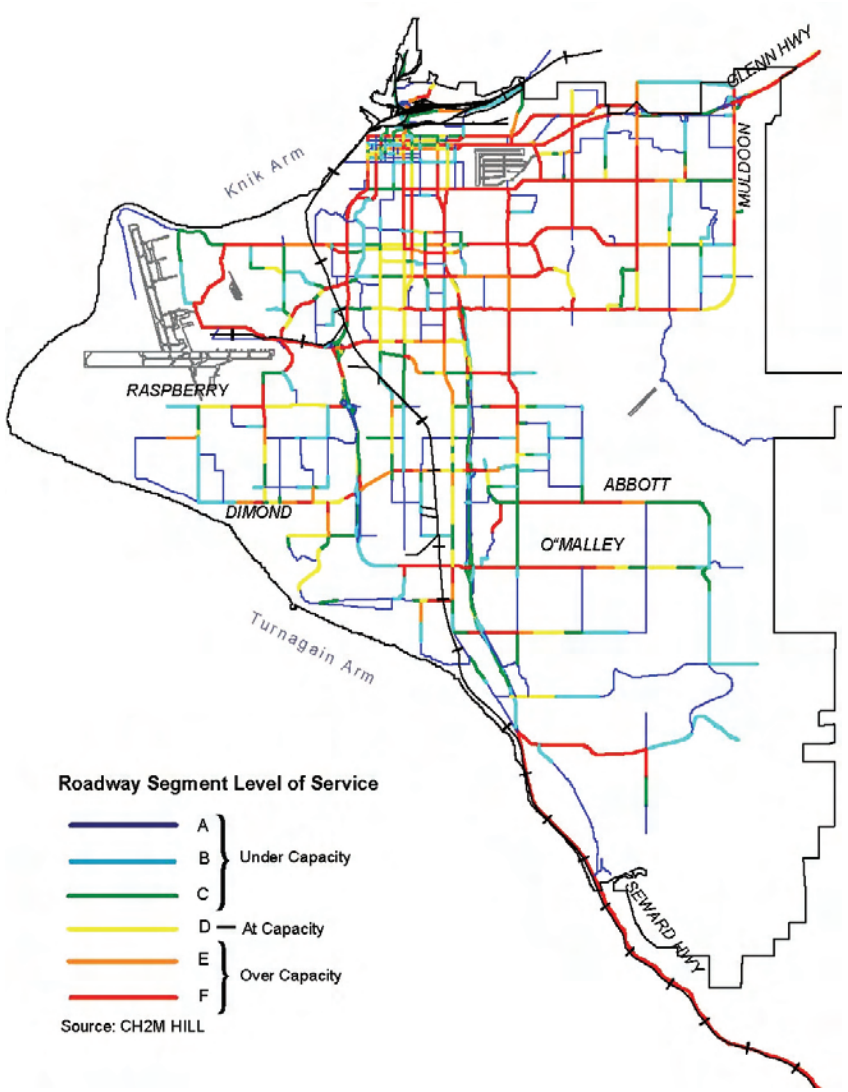
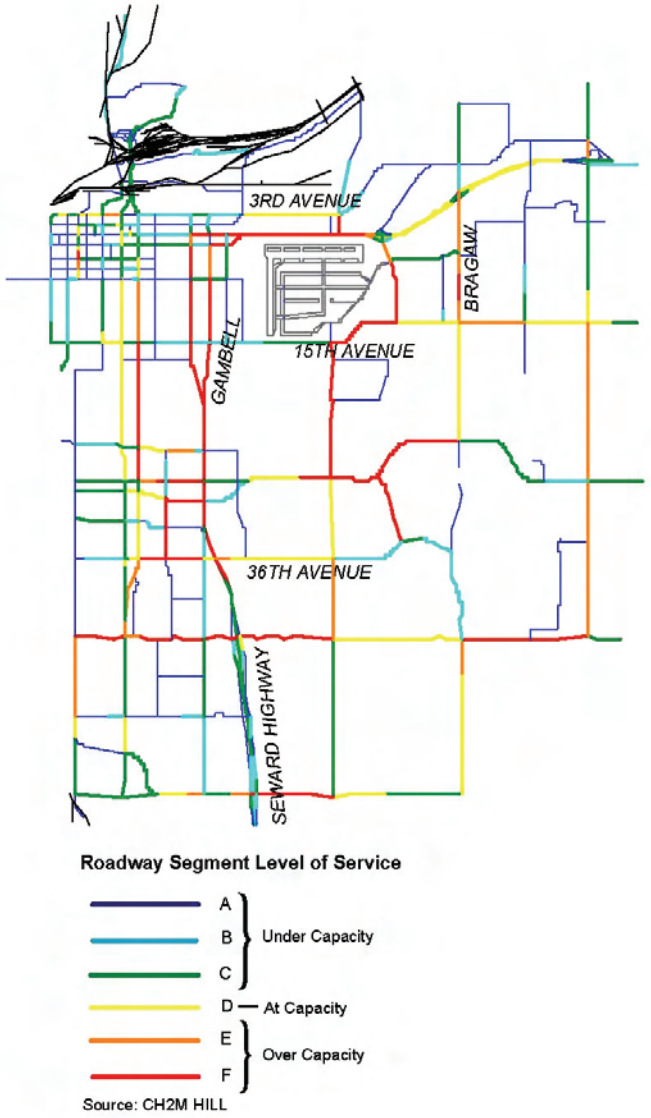


Figure 7-11. Total Daily Performance of Ingra-Gambell Streets Couplet and Seward Highway Corridor in 2025



Northern Lights the spacing is 1.5 to 2 miles between the few continuous north-south arterial routes. This major arterial spacing is marginal to handle locally generated traffic and travel attracted to major facilities such as the universities, hospitals, and major commercial areas. When traffic shifts from the Glenn Highway corridor, it overloads these East Anchorage arterials.

Neither the universities nor Providence Hospital can be reached easily from the north or the east. Inadequate access and traffic circulation to these major travel generators compounds traffic conditions throughout East Anchorage.

Tudor Road Corridor

Tudor Road from Minnesota Drive to Muldoon Road is one of the busiest arterials in the Anchorage Bowl. A component of the National Highway System, this road is one of only a few east-west arterials that traverse the entire city. Daily traffic volumes in 2002 ranged from 25,000 at each end to 50,000 vehicles per day in busier sections.

Travel projections for 2025 show that congestion across the Tudor Road corridor becomes increasingly severe. The intersection deficiencies along Tudor Road and the systemic congestion and capacity deficiency across the full length of the Tudor Road corridor need to be addressed to adequately cope with 2025 traffic demand.

Because of restricted right-of-way and development fronting the Tudor Road corridor, widening is not desirable or realistic. A corridor traffic management program that uses all available and appropriate techniques for managing the transportation system can improve traffic flow on the corridor.

Boniface Parkway Corridor

Boniface Parkway in East Anchorage provides access to Elmendorf Air Base and has continuity from the Glenn Highway to Tudor Road—one of only two such links in East Anchorage. Boniface Parkway has relatively few driveway accesses and cross-street intersections. The limited access reduces traffic friction along the corridor. Future travel demand (2025) in this corridor exceeds 30,000 vehicles daily. An access management program should be implemented to preserve its traffic-carrying ability as traffic demand increases to projected 2025 levels.

Lake Otis Parkway Corridor

Lake Otis Parkway in East Anchorage is another important north-south arterial corridor. It provides access to Alaska Regional Hospital and offers continuity from Huffman Road in South Anchorage to DeBarr Road in East Anchorage. But it does not provide direct arterial continuity with Airport Heights Drive or the Glenn Highway. An interchange connection with the Glenn Highway at Airport Heights Drive would improve north-south circulation and decrease neighborhood cut-throughs in East Anchorage.

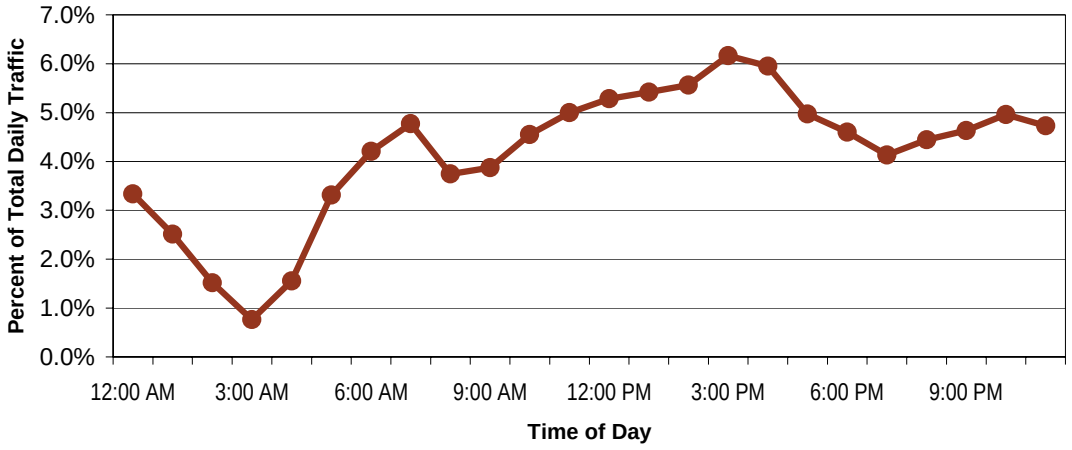
Minnesota Drive North of International Airport Road

Minnesota Drive carries heavy traffic volume as it transitions from freeway to arterial street at Tudor Road. Travelers from Southwest Anchorage and the airport area use Minnesota Drive to reach destinations in Midtown, Downtown, and East Anchorage. Traffic volumes in 2025 are projected to be heaviest between International Airport Road and Tudor Road, declining somewhat between Tudor Road and Spenard Road, and dropping north of Northern Lights. Development of a Minnesota Drive interchange at Tudor Road and arterial improvements north of Tudor Road to Northern Lights are needed to accommodate 2025 traffic demand. The Minnesota Drive segment between Spenard Road and Northern Lights Boulevard will require special attention to address complex traffic flow patterns between Spenard Road, 36th Avenue, and Benson/Northern Lights boulevards.

Ted Stevens Anchorage International Airport Access

International Airport Road from Minnesota Drive to the TSAIA terminals consistently shows a heavy travel demand and overload of available capacity. Closer examination of details suggests the

Figure 7-12. Hourly Traffic Flow for International Airport Road



Source: MOA Department of Public Transportation

deficiency may be overstated, however. Travel to and from the airport is unique because a large share of use occurs during night and mid-day hours and, conversely, a relatively lesser share occurs in traditional morning and afternoon commute hours. Because of this different time-of-day travel pattern, the capacity deficiency is likely overstated. Figure 7-12 illustrates the hourly traffic flow for International Airport Road. Other arterial roads typically have 8 to 9 percent of daily traffic in the maximum peak hour while the peak for International Airport Road is about 6.6 percent.

Except for the signalized intersections of International Airport Road at Jewel Lake Road and Postmark Drive, the airport access route is effectively an expressway from Minnesota Drive to the airport terminals. Either flaring these intersections to achieve higher throughput capacity or construction of interchanges at Jewel Lake Road and Postmark Drive is needed to eliminate the signalized intersection constraints.

Dowling Road

Segments of Dowling Road east and west of Seward Highway show excess capacity deficiency. The traffic demand overload is partially due to the discontinuities in the east-west street grid south of Tudor Road and north of Dimond Boulevard. A pragmatic improvement would connect Raspberry Road from its interchange at Minnesota Drive to 68th Avenue for full east-west continuity from Sand Lake Road to Abbott Loop Road. However, creeks and wetlands, developed housing, and neighborhood impact issues are impediments for this connection. A connection of Dowling Road to Raspberry Road would provide another east-west connection in Central Anchorage to achieve better traffic circulation.

Abbott Loop Road

Deficiencies are apparent in 2025 along Abbott Loop Road between Abbott Road and 68th Avenue. Connecting the grid on the east side of town, by extending Abbott Loop Road to connect with Bragaw Street to the north, alleviates traffic on Lake Otis Parkway and creates a direct route to the University-Medical District for Hillside residents. Adding left turn lanes and traffic signals at locations along Abbott Loop Road would manage traffic demand sufficiently. Right-of-way should be preserved for future connections and extensions of Abbott Loop Road from Abbott Road to Elmore Road at O'Malley Road.

Rabbit Creek Road

Rabbit Creek Road is the primary access to many lower Hillside residential areas, especially those served by Goldenview Drive. By 2025, Rabbit Creek Road shows a capacity deficiency. A third lane for left turns likely will be needed to accommodate the projected traffic demand.

Resolving Outstanding Deficiencies with New Projects

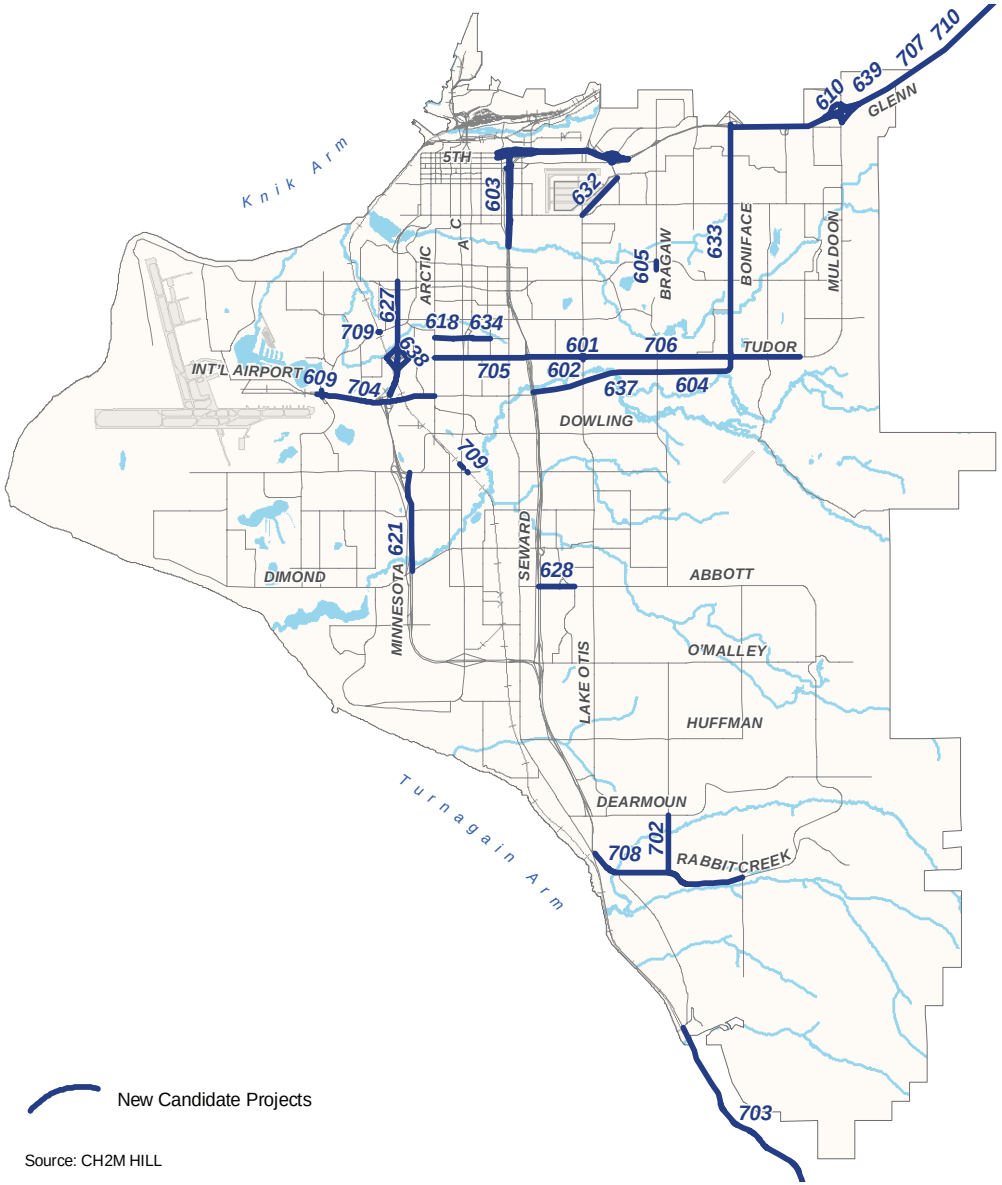
New Projects Scenario

The deficiencies analyses guided specification of new projects to improve the 2025 road network performance. The identified new project candidates depicted in Figure 7-13 range from widening existing road segments to building new segments. The most significant new project connects the Glenn Highway with the Seward Highway, providing a continuous, high-capacity, controlled-access facility along the Ingra-Gambell streets couplet and the Glenn Highway corridor. Other new projects add interchanges (International Airport Road at Jewel Lake Road and at Postmark Drive, Minnesota Drive at Tudor Road, and Lake Otis Parkway at Tudor Road).

Several combinations of these projects were evaluated to determine how they contribute to resolving deficiencies observed in earlier scenarios. Some candidate projects subsequently were rejected. A composite new projects scenario evolved, adding selected new projects to those already in the 2023 LRTP scenario. Traffic performance results for the new projects in 2025 are displayed in Figure 7-14 and shown in Table 7-2.

The road network performance is substantially improved overall in the new projects scenario. The number and scale of deficiencies are markedly reduced from the conditions reported for the scenarios discussed above. The effect of the Glenn Highway to Seward Highway connection is especially noteworthy. It literally removes nearly

Figure 7-13. Additional Candidate Projects



Source: CH2M HILL

The numbers on the map identify specific projects considered.

Table 7-2. Performance Comparison for 2002 and 2025 Project Scenarios

Feature	Scenario			
	2002 Road Network, 2002	Existing and Committed Road Projects, 2025	2023 LRTP Improvements, 2025	New Projects, 2025
Vehicle miles of travel in severe congestion	143,680	487,170	455,150	84,850
Traveler hours spent in severe congestion	4,420	23,330	18,327	3,565
Congested freeway miles				
Morning peak period	2%	25%	25%	16%
Afternoon peak period	4%	27%	27%	18%
Congested arterial miles				
Morning peak period	8%	22%	21%	16%
Afternoon peak period	23%	24%	21%	14%

Source: CH2M HILL

100,000 vehicles daily from other city streets, channeling them instead in a high-capacity facility able to maintain satisfactory traffic flow. The impact in the immediate corridor is to dramatically reduce surface street traffic volume and neighborhood disruption. The effect extends throughout East Anchorage, generally shifting travel patterns, lowering traffic on arterial roads, and reducing intrusion into and through neighborhoods.

Elsewhere, positive effects can be observed for Minnesota Drive north of the TSAIA, Tudor Road, and in generally better balance of volume demand and capacity throughout the network. However, Tudor Road corridor deficiencies remain unresolved, even with this connection.

Boniface Parkway Connection to TSAIA Scenario

An additional scenario was created to address traffic overloading on Tudor Road and provide a more southerly cross-town route with direct access to TSAIA. Boniface Parkway is extended south of Tudor Road to the vicinity of 48th Avenue, then continues westward on a curving alignment to meet International Airport Road at a new interchange on the Seward Highway, and provides direct connection to TSAIA.

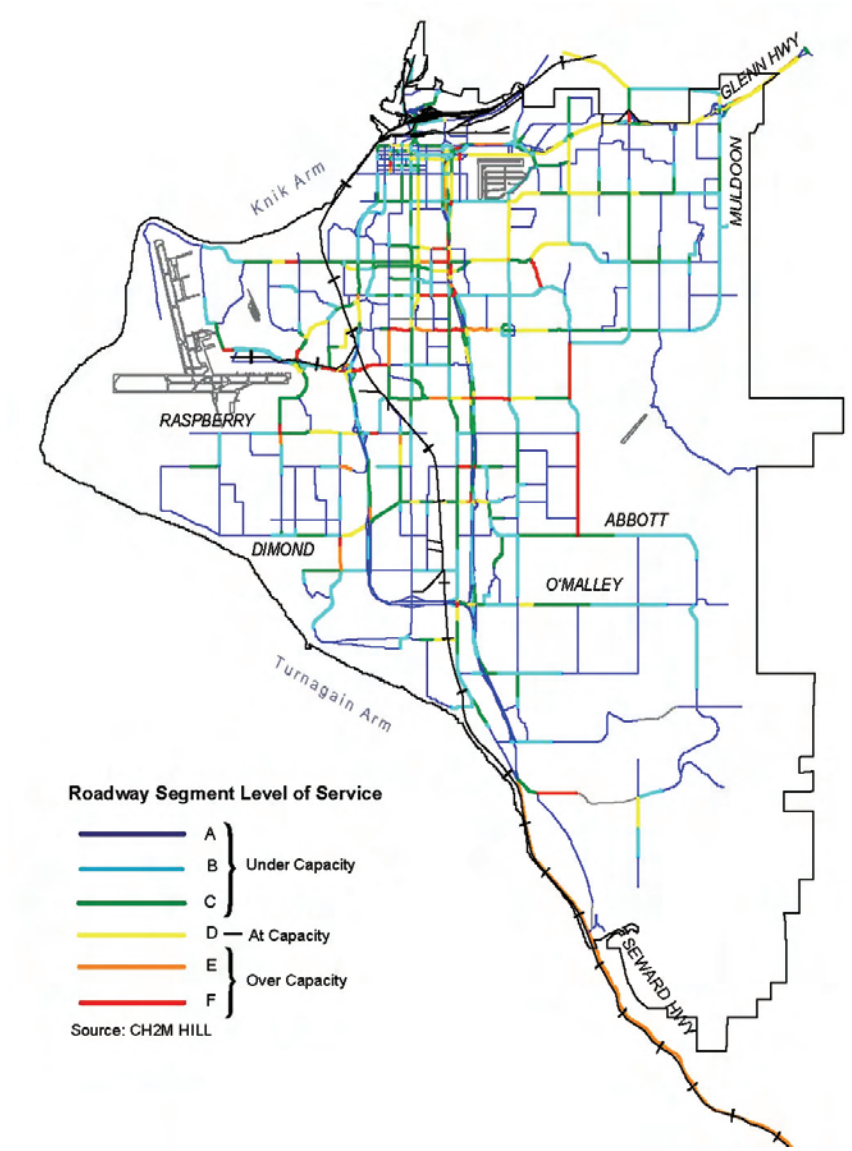
Although the connector is significantly effective in relieving Tudor Road congestion (Figure 7-15) and generally improving overall network operation, cost as well as environmental and community impacts are high for this scenario. Because the adverse impacts were judged to be too costly and significant to achieve acceptance, the Boniface Parkway connection to the airport scenario was rejected.

East Bypass Scenario

Proposals have been advanced in the past to consider a new road corridor, the East City Bypass road corridor to direct traffic around the east periphery of Anchorage. Conceptually, the bypass route would be a limited access corridor east of Muldoon Road and south of Tudor Road. Its northern terminus would be an interchange with Glenn Highway, and its western terminus would be an interchange on Seward Highway. The route would connect to TSAIA through International Airport Road. Intermediate interchanges would be included at DeBarr Road, Northern Lights Boulevard, and southern extensions of Muldoon Road, Boniface Parkway, and Bragaw Street.

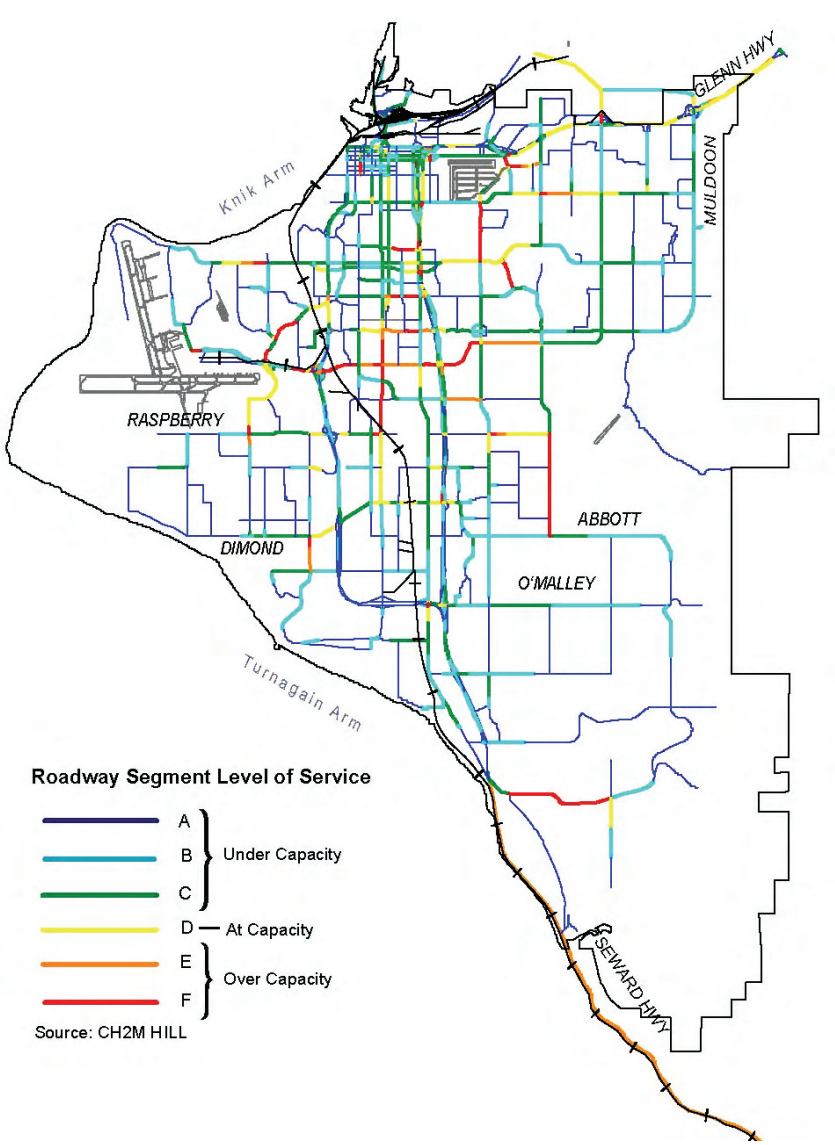
This scenario was examined in the *East Anchorage Study of Transportation, Forecast Report, Draft* (HDR Alaska, Inc., 2003). The bypass was found to split traffic coming into Anchorage from the north, but to provide small benefits in serving travel within the Anchorage Bowl. Bypass use would be light along its periphery segment east of Muldoon Road, with traffic picking up considerably west of the Boniface Parkway connection. Because this scenario did not significantly affect the severely congested areas within the Anchorage Bowl and travel to employment centers, it is not a viable candidate scenario for the LRTP.

Figure 7-14. Total Daily Performance of Additional Projects in 2025



The numbers on the map identify specific projects considered.

Figure 7-15. Total Daily Performance of Additional Projects with Boniface International Airport Road Expressway in 2025



The numbers on the map identify specific projects considered.

Effect on Road Performance of Intensifying Anchorage 2020 Land Use Policies

Would significantly concentrating new housing growth near employment and at more compact density reduce Anchorage road needs? A land-use scenario characterizing new housing intensification was evaluated to determine its potential to reduce travel, shift trips to non-automobile modes, and reduce road investment requirements.

A growth pattern that concentrates nearly 80 percent of new Anchorage Bowl household growth into the transit corridors, town centers, and employment centers of Anchorage 2020 was created. Evaluation of this "intensification policy" scenario with the travel model compared its travel, mode shares, and transportation system performance to the corresponding results for the adopted Anchorage 2020 comprehensive plan.

The projects needed to accomplish LRTP objectives were not discernibly different for implementation of the intensification scenario or the Anchorage 2020 scenario. The intensification scenario does encourage more pedestrian and bicycle trips, increases transit riders, and yields some reduction in daily vehicle miles of travel (VMT); however, roadway traffic volume differences are virtually imperceptible—congestion levels are still high in many areas of the Anchorage Bowl. More detailed information about this scenario is presented in the LRTP Working Paper, "Policy Area Intensification Land Use Alternative Scenario Evaluation" (available at www.muni.org/transplan).

Assessing Individual Road Projects

The road scenarios evaluated above considered groups of road projects in each scenario. In some cases, some project overlap or redundancy is apparent. Accordingly, each project was reviewed individually to determine if it merited inclusion and retention as an LRTP improvement. Two considerations were included in evaluating merit: (1) Is the project warranted for physical preservation and rehabilitation reasons? (2) Is the project justified to accommodate forecast traffic for mobility and congestion relief? Projects that met either criterion were carried forward for further consideration in LRTP planning for road improvements.

Road Improvement Impact Measures and Cost Estimates

In addition to traffic performance, other impact measures were developed concurrently to assist in assessing projects and alternative scenarios. The projects in each scenario were examined to identify land areas to be acquired from property owners; effects on wetlands, open space, parklands, noise, and air quality; and other community and environmental impacts. These data were incorporated into the alternatives evaluation.

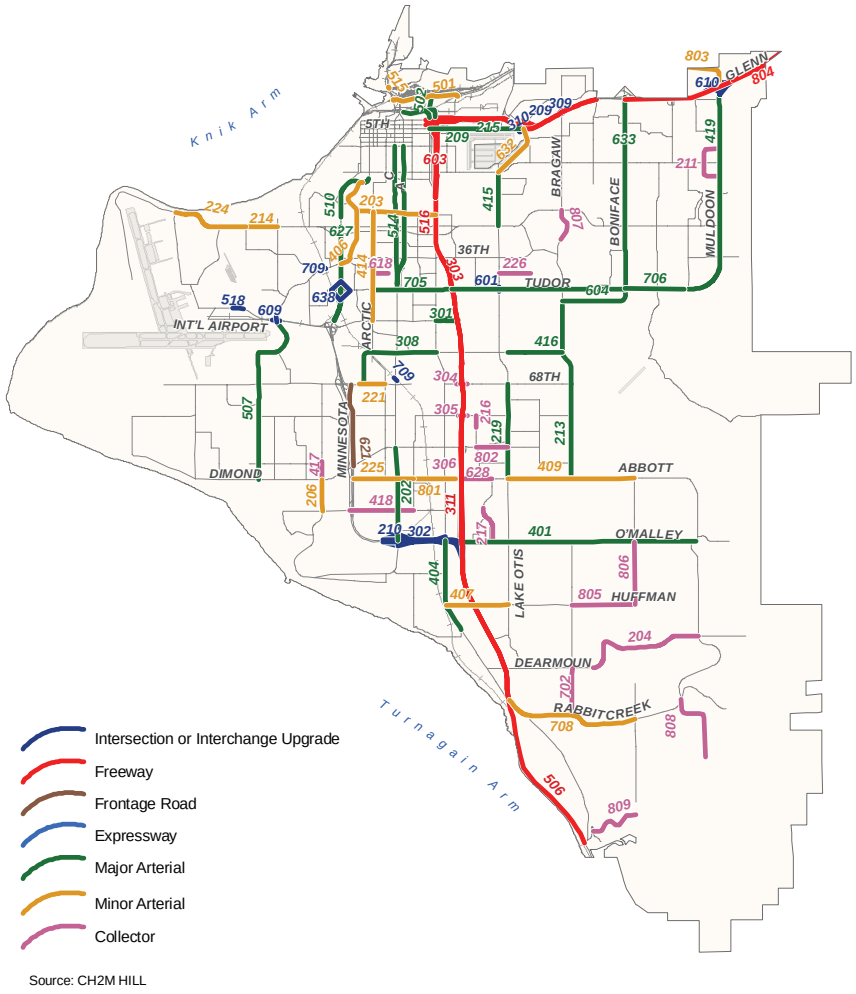
Planning-level cost estimates were prepared for each project. Cost estimates were assembled from previous AMATS, MOA, and DOT&PF work and adjusted to 2004 dollars when necessary. Newer cost estimate information from major environmental and preliminary engineering studies was obtained for applicable projects. If estimates were not available, planning-level estimates were developed by the LRTP team. All costs are at a planning level, generally without benefit of more engineering detail. All cost estimates are expressed in 2004 constant dollars without future escalation. Costs and funding are discussed more fully in Chapter 9.

Recommended Projects Scenario

The composite results of individual project assessments, community impact effects, and project costs culled certain projects from consideration. The road projects emerging from this multi-tier screening process compose the recommended road projects scenario in Figure 7-16.

Illustration of how the recommended projects scenario performs (Figure 7-17) reveals that nearly all earlier road network deficiencies are cleared up. Some road segments do show modest overloads (orange and red segments) in 2025. However, in many cases, overloading is on isolated road segments and the scale of overloading is markedly reduced and manageable. Statistical results for the recommended plan scenario are summarized and compared to conditions in 2002 in Table 7-3.

Figure 7-16. Recommended Road Projects



The numbers on the map identify specific projects considered.

Figure 7-17. Total Daily Performance of Recommended Road Projects

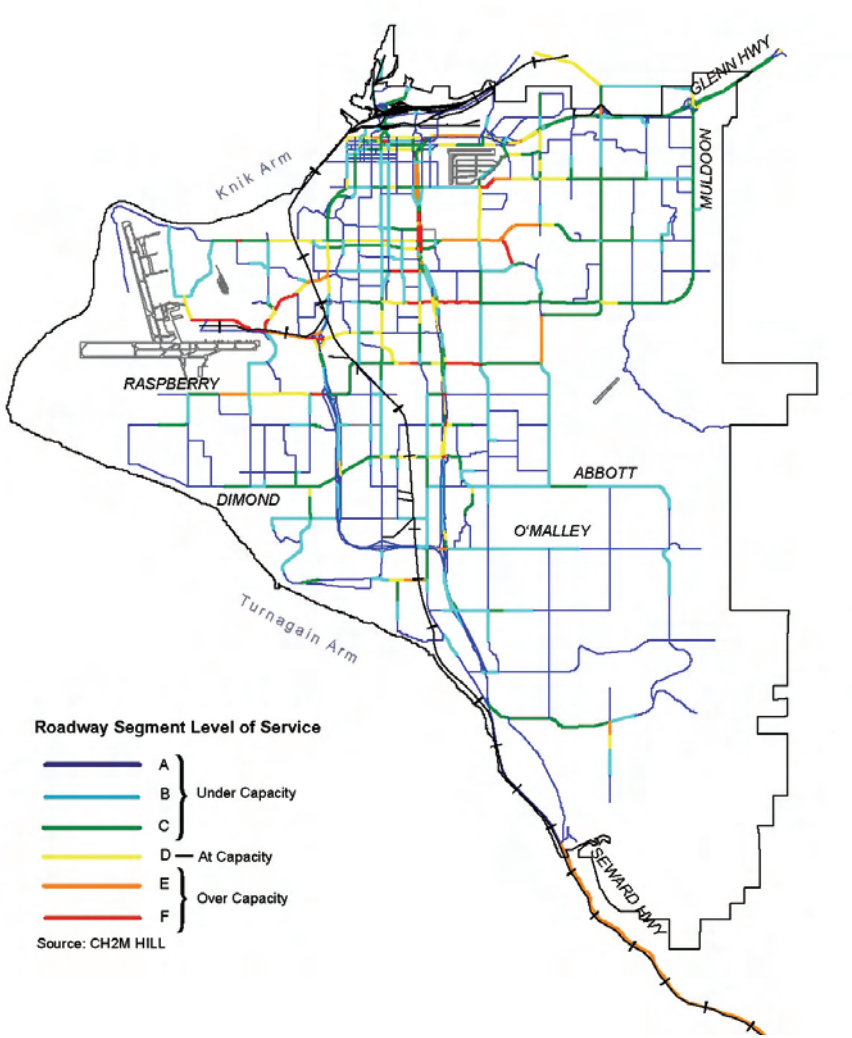


Table 7-3. Performance Comparison for 2002 and 2025 Project Scenarios and the Preferred Network

Feature	Scenario				
	2002 Road Network, 2002	Existing and Committed Road Projects, 2025	2023 LRTP Improvements, 2025	New Projects, 2025	Preferred Scenario
Vehicle miles of travel in severe congestion	143,680	487,170	455,150	84,850	69,150
Traveler hours spent in severe congestion	4,420	23,330	18,327	3,565	3,261
Congested freeway miles					
Morning peak period	2%	25%	25%	16%	13%
Afternoon peak period	4%	27%	27%	18%	13%
Congested arterial miles					
Morning peak period	8%	22%	21%	16%	13%
Afternoon peak period	23%	24%	21%	14%	12%

Source: CH2M HILL

Conclusions and Approaches for the Road System

The recommended road improvements were assessed for performance in 2025. Comprehensive evaluations of road network performance, community impacts, and costs were considered.

The recommended road plan cuts 100 million annual VMT in comparison to the congested travel conditions that would be experienced in 2025 with implementation of the existing LRTP. It also eliminates 3.9 million annual driver hours spent in severe congestion in 2025. The recommended plan sustains and improves on the mobility of 2002 for the next 20 years.

Managing and dealing with Anchorage traffic growth during the next 20 years will pose challenges. Road improvements will need to focus on completing major missing links, preserving and rehabilitating the already-built network, establishing continuity, and balancing capacity to travel demand. Although projects included in the prior 2023 LRTP plan are a significant step forward, more improvements will be needed to meet future demand. Continuing community support will be essential.

When fully implemented, the recommended road plan will cut 100 million annual vehicle miles of travel, compared to the results of the 2023 LRTP.

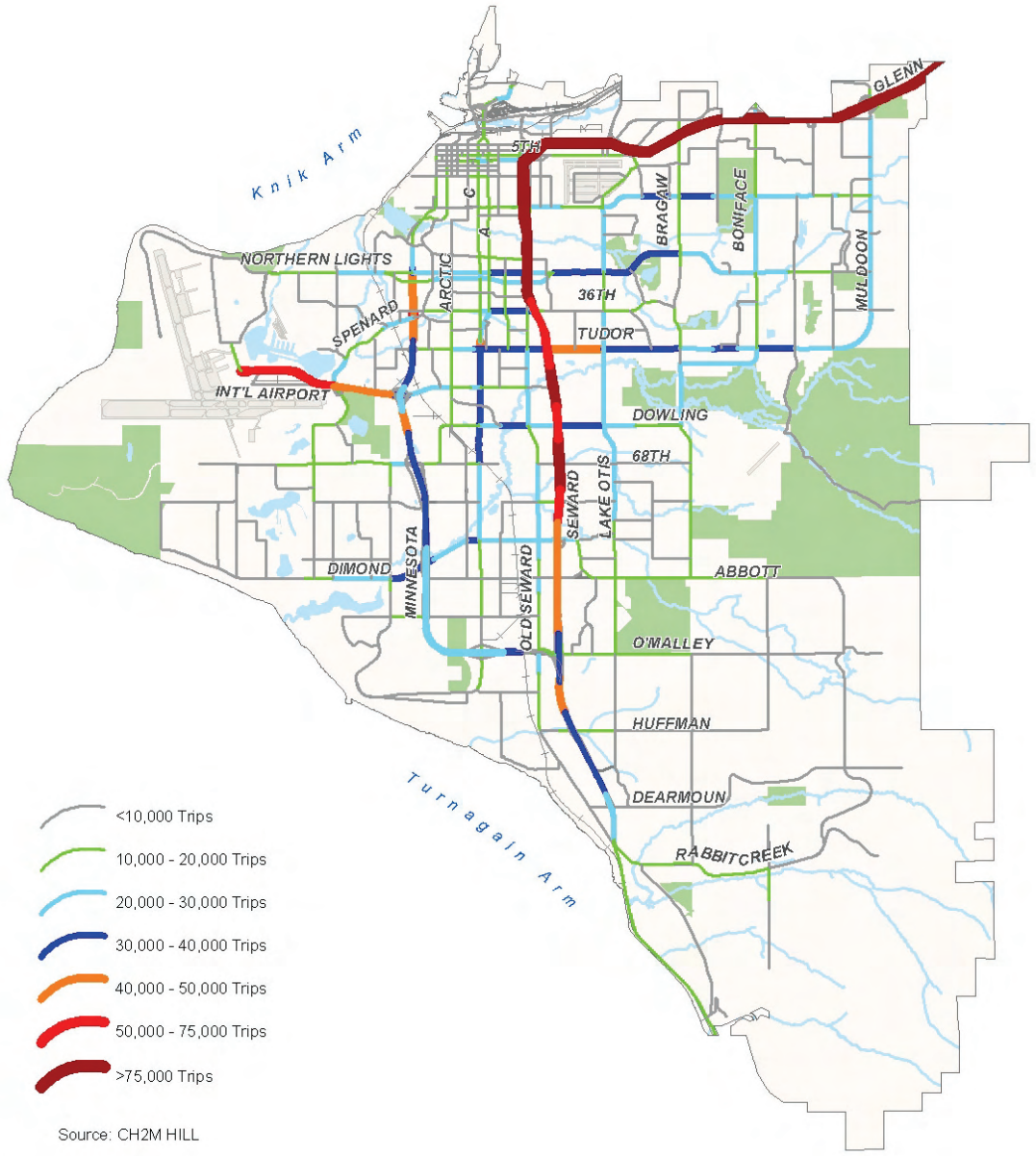
Remaining Deficiencies in the Road System

Modeling for the 2025 traffic predicts that the 40 percent increase in vehicle trips from the 2002 traffic level will present several locations where, in spite of the recommended LRTP road improvements, the volume of vehicles will exceed the capacity of the roadways. (See Figure 7-18.) Peak-hour congestion and related intersection delays will result. Some of these locations are in and around Midtown, an area that presents significant challenges in promoting solutions to its congestion.

Where such locations exceeding roadway capacity still exist, more analysis of the roadways, alternative parallel routes, and other operational improvements is needed. In addition, efforts should be made to preserve the right-of-way for road improvements that would help alleviate congestion in these locations, including the following road system components:

- East-west functional road structure from Tudor Road to south of Dimond Boulevard
- Tudor Road corridor
- Dowling Road corridor
- C Street, from International Airport Road to 68th Avenue
- UAA Drive and University-Medical District access
- International Airport Road, from Minnesota Drive to TSAIA

Figure 7-18. 2025 Average Daily Traffic for Highways, Arterials, and Collectors



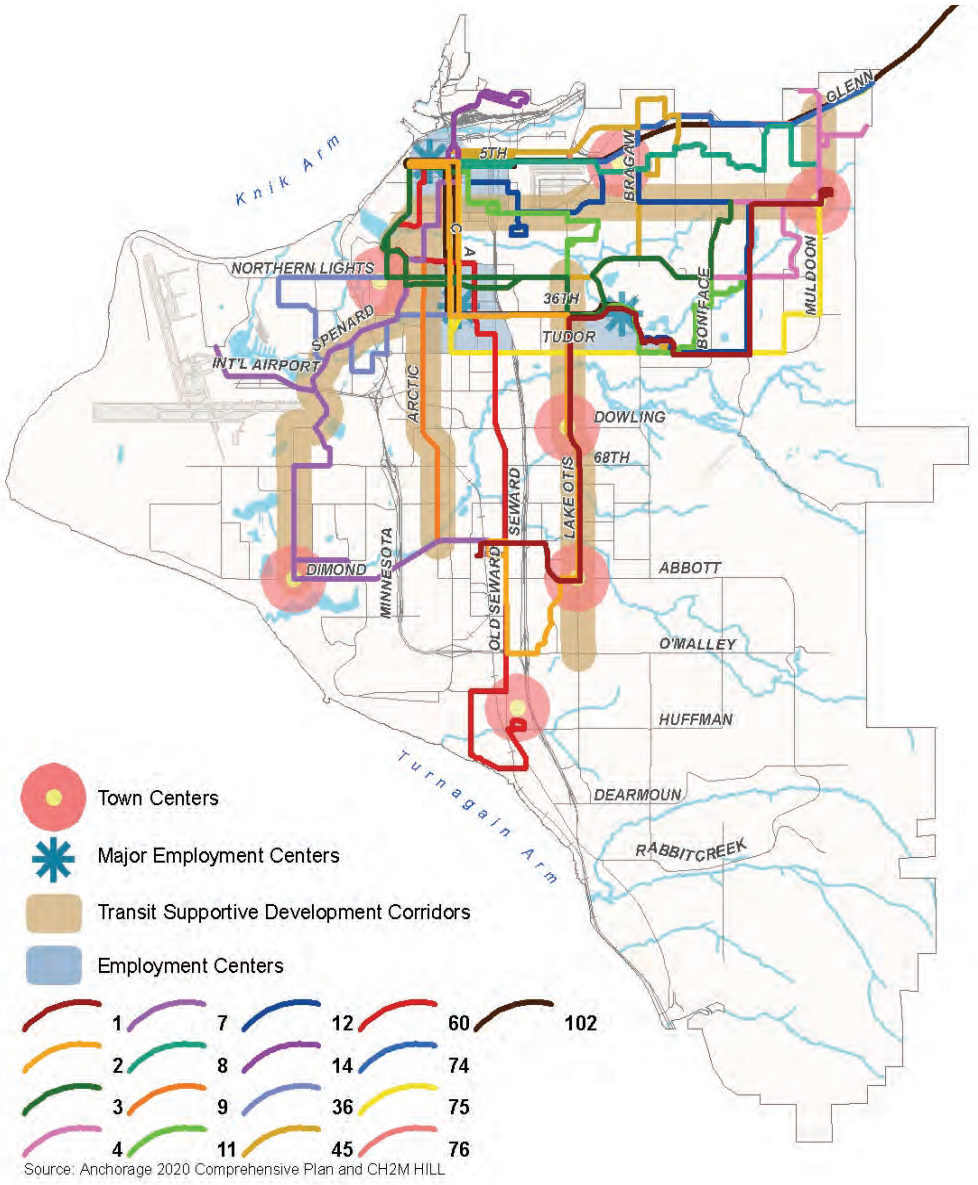
- Spenard Road, from Northwood Drive to Wisconsin Street
- North-south coastal route as an alternative to the Glenn Highway for emergency access from Port of Anchorage to Knik River (study)

Public Transportation

Important questions for the LRTP revolve around what scale of transit system is most appropriate. What frequency and scope of service? How many riders might transit attract? How can transit help relieve congestion? In 2002, the People Mover system operated 14 routes in the Anchorage Bowl and three routes serving Chugiak-Eagle River. See Figure 7-19. During weekday peak hours, 11 routes had 30-minute frequency; during mid-day, service was generally at 60-minute frequency. Average weekday riders numbered 10,691. Characteristics of the bus service and ridership (Figure 5-7) are discussed in Chapter 5. Table 7-4 summarizes transit service operational data trends from 1992 to 2004.

People Mover was beginning to transition to a new service configuration described in *The People Mover Blueprint: A Plan to Restructure the Anchorage Transit System* (RLS and Associates, 2002). Extensive work was under way to revamp routes and transit operation to deliver more attractive and more effective service. The route restructuring plan called for improving service in several phases between 2003 and 2007.

Figure 7-19. People Mover Bus System, 2002



Source: Anchorage 2020 Comprehensive Plan and CH2M HILL

Table 7-4. People Mover Service and Ridership, 1992–2004

Year	Peak Hour Buses	Timetable Hours	Operating Cost ($)	Passengers	Operating Revenue[a] ($)
1992	44	105,371	9,943,764	3,050,659	1,768,437
1993	42	104,252	9,655,793	3,058,469	1,861,292
1994	40	104,527	9,459,389	3,029,483	1,830,907
1995	38	104,829	9,419,151	3,019,765	1,827,339
1996	38	105,569	9,408,753	3,052,690	1,923,758
1997	42	107,315	9,465,703	3,161,658	1,913,393
1998	42	108,666	9,781,769	3,220,524	1,947,758
1999	39	107,414	10,333,089	3,316,060	2,019,359
2000	40	104,506	10,532,615	3,356,982	1,955,982
2001	40	109,255	11,727,420	3,339,940	1,836,844
2002	41	110,449	13,023,362	3,120,567	2,397,031
2003	43	114,614	13,526,892	3,339,451	2,452,354
2004	46	124,734	17,234,475	3,536,059	3,162,262

[a]Operating revenue consists of passenger fare revenues, advertising revenues, and other program revenues. Federal capital and other program grants are excluded.

Source: MOA Department of Public Transportation

Table 7-5. Population and Employment with 1/4-Mile Access to Transit Routes, 2002, 2013, and 2025

Indicator	Population			Employment		
	2002	2013	2025	2002	2013	2025
Total Anchorage Bowl	225,305	242,389	300,741	135,444	145,829	171,354
Transit System	**Population within ¼ Mile**			**Employment within ¼ Mile**		
2002 bus system	143,910	153,820	184,090	110,565	116,470	137,160
Restructured routes	NA	189,010	226,100	NA	129,880	152,570

NA = Not applicable

Source: CH2M HILL

Bus System in 2013 and 2025—Base Scenario

The initial analyses of possible future transit service scenarios examined what might evolve based on the 2002 bus system, as well as on the new route restructuring system.

For many years, fiscal constraints have controlled bus service and operation in Anchorage. What transit use can be anticipated if the same funding limitations prevail through 2013 or 2025? Guided by Anchorage 2020 policies, population and employment growth will create opportunity for increasing transit riders. About 10,000 more people and 9,500 new jobs are expected to be within one-quarter mile of the existing (2002) bus routes by 2013, and about 40,000 more people and more than 30,000 additional jobs by 2025. (See Table 7-5).

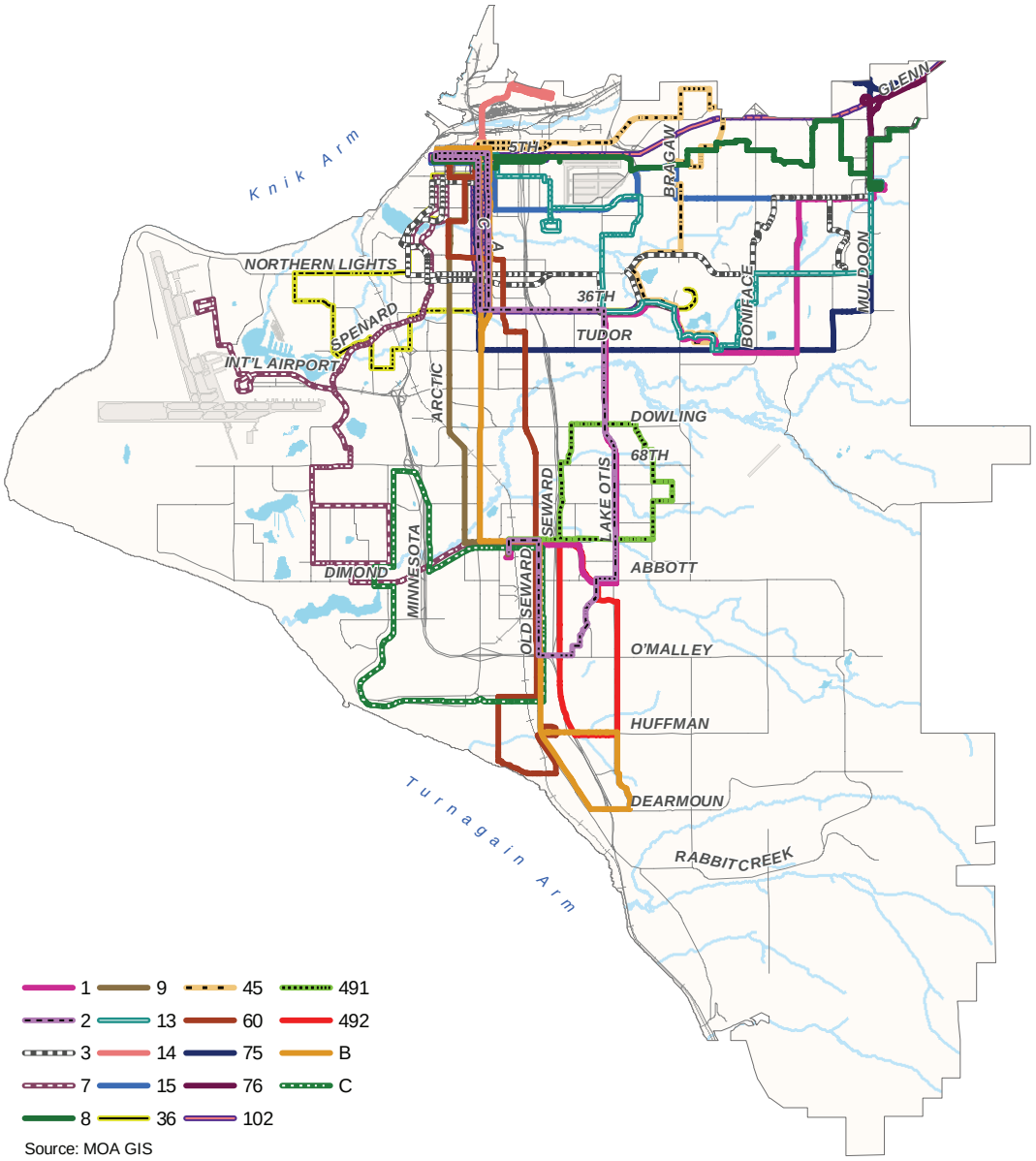
If the transit routes, service frequencies, and fares remained at 2002 levels, weekday transit riders in 2013 and 2025 would increase to 11,700 and 15,600, respectively (Table 7-6). These ridership increases correspond to gains of 10 percent by 2013 and 47 percent by 2025.

Table 7-6. Existing and Estimated Riders for 2002 Bus Routes and Service

Year	Ridership
2002	10,600
2013	11,700
2025	15,600

Source: CH2M HILL

Figure 7-20. People Mover Route Restructuring Bus System



Source: MOA GIS

The transit rider increase can be attributed at least partially to greater density of housing units and jobs in transit development corridors resulting from Anchorage 2020 policies. Because transit service level remains constant, the gain in riders is drawn primarily from population and job growth in areas accessible to transit routes.

Route and Service Restructuring Scenarios

Implementation of Ongoing Improvements

In 2002, efforts were under way to transition the People Mover bus system into a different route structure with more frequent service, modified schedules, and better coordination among bus routes. Route restructuring was based on results of surveys, public input, analysis of ridership patterns on each route, and proposed improvements to the route structure and schedules for the system. The overall objective of more "customer focus" prompted reorienting the system to provide reduced passenger travel times, increased access to employment sites, and generally easier use of transit.

Implementation of the 5-year program of improvements for years 2003 to 2007 is ongoing. See Figure 7-20 and Table 7-7. The restructuring plan implementation is assisted by a Federal Highway Administration congestion mitigation and air quality (CMAQ) grant that expires in July 2006.

Table 7-7. Expected Results for People Mover Route Restructuring, 2003–2007

Feature	2003 Bus System	Route and Service Restructuring Scenario
Number of annual passengers	3.3 million	4.2 million
Number of buses	45	59
Total transit operating cost covered by rider fares	21%	24%
Additional annual operating support from the MOA general fund needed to sustain the 2007 service level	$0.75 million	$4.1 million

Source: RLS and Associates, *The People Mover Blueprint: A Plan to Restructure the Anchorage Transit System*, 2002

Objectives and elements of the restructured system enhancements include the following:

- Improve service frequency (the length of time between buses on a route) to 30-minute frequencies all day on weekdays on all routes (a doubling of service frequency on most routes) and to 60 minutes during evenings and weekends
- Implement community circulator service operating with smaller vehicles in the lower-density areas in South Anchorage and Chugiak-Eagle River where demand for transit service is lower. This service, referred to as DART, deviates from the normal routes to come closer to more homes and destinations.
- Operate later service on weekdays and weekend service that starts earlier in the morning and ends later at night
- Establish timed transfers Downtown and elsewhere so that riders transferring between routes can get off one bus and directly onto another
- Rewrite bus schedules that use memory or "clock" headways, so that riders need not always carry a timetable. One would only need to know that the bus at any particular stop, for example, arrives 10 minutes before the hour and 20 minutes past.
- Provide more direct routing that permits express service to reduce travel times
- Create a transit center near the intersection of Muldoon and DeBarr roads (Creekside Town Center)
- Improve paths and sidewalks from residential and commercial areas to bus stops, including snow removal on paths and around bus stops.

By the end of 2004, many restructuring changes were in place. All routes had been realigned and 30-minute weekday service had been introduced on three routes with highest patronage. The average 2004 weekday riders on People Mover increased to 11,921 (versus 10,691 in 2002). For the entire year, People Mover carried 3,536,060 passengers, the fifth highest ridership per year on record.

Factors That Influence Traveler Mode Decisions

Decisions by individuals about what transportation mode to use represent a key component of travel behavior. Statistical analyses of these decisions in dozens of metropolitan areas have revealed common relationships among factors that affect traveler behavior. (A list of several factors that influence transit use appears in the Chapter 5 section on "Public Transportation.")

Extensive research on traveler behavior includes studies of traveler responses to transportation system changes and mathematical modeling of mode-decision behavior. For example, *Traveler Response to Transportation System Changes* (Transit Cooperative Research Program Report 95), published by the Transportation Research Board of the National Academy of Sciences, documents more than four decades of exhaustive tracking of how travelers respond when transit service, parking, road, and other transportation system changes are introduced.

The Anchorage travel model, which embodies traveler decision behavior, is able to closely predict the number of People Mover riders for different conditions. In a test of model accuracy, the number of weekday riders estimated with the model for 2002 was 10,714 bus riders. This figure was very close to the recorded 2002 transit count of 10,691 riders.

To fully implement route restructuring, future efforts require upgrading to 30-minute mid-day frequency on 11 routes, extending late evening service and earlier morning service, improving DART frequency, and adding new routes.

If all route restructuring improvements are funded as planned during each of the 5 implementation years through 2007, as outlined in the People Mover route restructuring plan, the service improvements are expected to attract about 14,300 weekday and reposition transit.

Route Restructuring Riders with 30-Minute Frequency in 2013 and 2025

Weekday riders for the bus system with route restructuring and 30-minute frequencies on all routes in 2013 and 2025 were assessed by using the Anchorage travel model. Figure 7-21 presents the results and 2002 numbers for comparison. Impressive gains in transit riders are realized in 2013 and 2025 compared to 2002—15,300 riders in 2013 (43 percent more than in 2002) and 20,700 in 2025 (93 percent more than in 2002).

The route restructuring service improves accessibility to bus routes. More homes and jobs are within one-quarter mile of transit service than before route restructure was implemented. Table 7-5 shows that about 23 percent more people and 11 percent more jobs are projected to be within walking access of the restructured route system than would be the case for the 2002 bus system.

Route Restructuring with Increased Service Frequency

In another transit scenario, the effect of providing more frequent transit service was examined. The same restructured routes were assumed, but service during weekday morning and afternoon commuting periods was increased to 15 minutes on all routes. Service remains at 30-minute frequency for other hours.

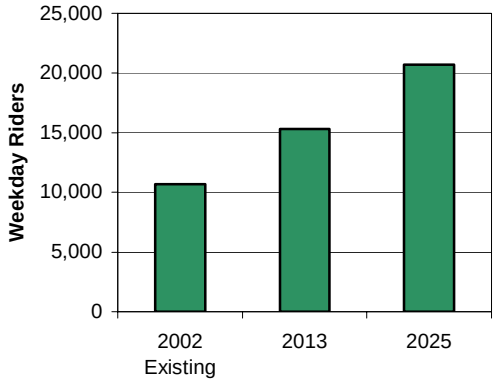
The effect of more frequent service during commuting hours is a 23 percent gain in riders for 2025 (Figure 7-22). Total ridership for the 2025 scenario with 15-minute peak and 30-minute off-peak frequencies is about 137 percent of weekday ridership in 2002.

Advanced Technology Transit Scenario

An important policy question for Anchorage is whether a significantly higher performance transit system could attract many more riders and reduce vehicle traffic and road investments. That thesis was examined by hypothesizing a substantially more sophisticated scenario featuring an advanced technology express transit system operating primarily on separate rights-of-way. A high-end system was used in this scenario because the purpose was to see what the upper limits of transit potential might be.

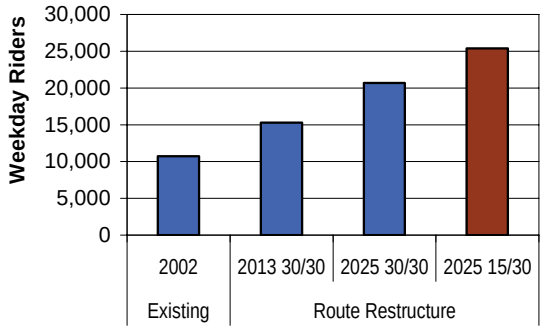
The key feature of this scenario is that the express bus service is not hindered by road traffic and not affected by traffic congestion. Transit stops are spaced at intervals of one-half to three-quarters of a mile. Weekday service frequency in all express bus corridors is set at 15 minutes during peak

Figure 7-21. Estimated 2013 and 2025 Weekday Riders for Route Restructuring with Weekday Service at 30-Minute Frequencies



Source: CH2M HILL

Figure 7-22. Estimated 2013 and 2025 Weekday Riders for Route Restructuring with Weekday Service at 15-Minute Frequencies



Source: CH2M HILL

commute periods and 30 minutes for all other time periods. Fifteen minute service frequency for peak hours and 30-minute frequency for other hours is provided for all bus routes that do not overlap the express bus corridors. Local bus service within the express bus corridors is at 30-minute frequency all day.

Transit vehicles would have traffic signal preemption transmitters, electronic fare collection, low floors for quick passenger entry and exit, and other amenities.

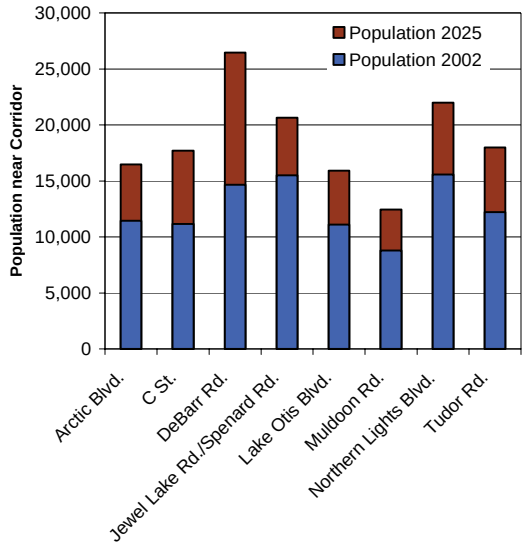
Glenn Highway express bus service operates from Chugiak-Eagle River to major employment center destinations in the Anchorage Bowl; similar service would run from the Mat-Su Valley to the same Anchorage Bowl destinations. Express services runs at 10- to 15-minute frequency in the morning and evening commute periods only.

Commuter rail in the Alaska Railroad corridor during commute hours only was also included in the advanced transit scenario. Commuter rail service would run between Wasilla in the Mat-Su Borough and the Ship Creek Intermodal Terminal, possibly to the TSAIA terminal. Commuter stations would also serve Chugiak-Eagle River.

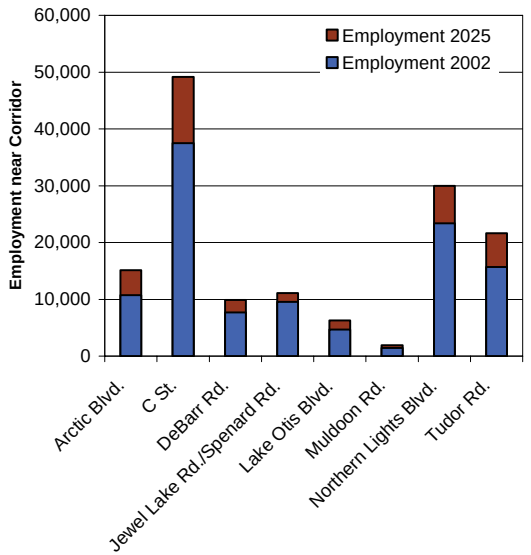
Designation of Express Bus Priority Corridors

The land-use policies of Anchorage 2020 delineate transit-supportive development corridors to encourage more frequent transit service. Generally, the corridors with the largest populations and the most employment would be expected to offer the best opportunities for attracting transit riders.

Figure 7-23. Accessibility Findings for North-South and East-West Primary Corridors



Source: CH2M HILL and MOA



Source: CH2M HILL and MOA

Corridors were examined to determine the number of persons and accessible jobs within one-quarter mile in 2002 and to project those results for 2013 and 2025. Figure 7-23 depicts the accessibility findings for eight north-south and east-west primary corridors within the Anchorage Bowl. From these analyses, four priority corridors were selected along with the Glenn Highway corridor for designation as express bus corridors in the advanced technology transit scenario:

- Creekside Town Center (Muldoon Road) to Downtown via DeBarr Road, a loop to serve the Northway Town Center, 15th Avenue, and the A-C couplet
- Muldoon Road from the Glenn Highway to TSAIA via Muldoon Road, Northern Lights Boulevard, Boniface Parkway, Tudor Road, the University-Medical District via Bragaw Street and 36th Avenue, Lake Otis Parkway, Northern Lights-Benson boulevards couplet, Minnesota Drive, Spenard Road, and International Airport Road
- Downtown to Dimond Mall, Abbott Town Center, and Huffman Town Center via the A-C couplet, Tudor Road, Arctic Boulevard, Dimond Boulevard-Abbott Road, Lake Otis Parkway, and Huffman Road

- Downtown to Dimond Mall, Abbott Town Center, and Huffman Town Center via 5th Avenue, Bragaw Street, Northern Lights Boulevard, the University-Medical District, Tudor Road, Lake Otis Parkway to the Dowling and Abbott town centers, 92nd Avenue to Dimond Mall, and Old Seward Highway to Huffman Town Center

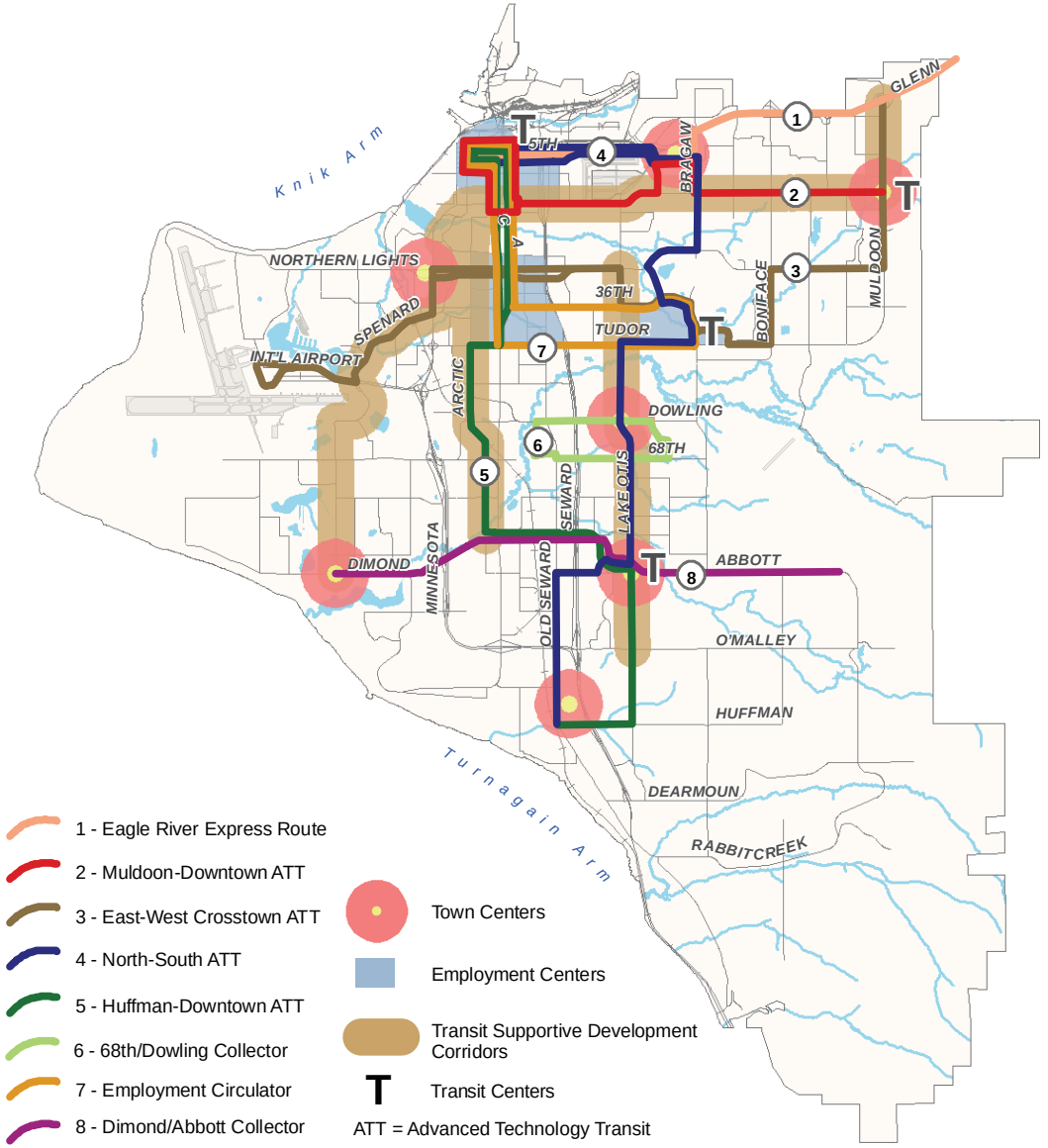
Figure 7-24 shows the composite layout for the advanced technology transit system. The number of weekday transit riders in 2025, shown in Figure 7-25, was estimated with the Anchorage travel model. The advanced technology system attracts 30,000 daily riders on its express bus network, People Mover bus, and commuter rail components. The rider volume is an increase of nearly three times the 2002 rider level and reflects 18 percent more riders than for the 2025 route restructuring scenario with 15- and 30-minute service frequencies.

Interpreting the Alternatives and Outcomes

Since the 1970s, LRTP documents have consistently envisioned improved transit services and a larger transit system. Transit service improvements have been few, however. In 2002, the People Mover bus system operated significantly less service and consequently carried fewer riders than in the early 1980s. Therefore, a critical challenge for the LRTP transit proposals is to confront this basic dichotomy between the vision and historical reality.

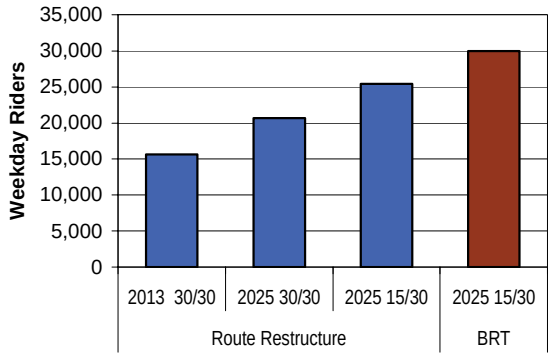
High per capita reliance on automobiles often results in congestion, larger streets, constant traffic,

Figure 7-24. Advanced Technology Transit System Scenario



Source: Anchorage 2020 Comprehensive Plan and CH2M HILL

Figure 7-25. Comparison of Advanced Technology Transit and Other Route Restructuring and Service Enhancement Scenarios



Source: CH2M HILL

drivers cutting through neighborhoods, adverse safety and health effects, larger street scale, and more parking and land consumption. These factors tend to thwart compact and walkable neighborhoods conducive to the use of transit and other modes of transportation. Success in reducing peak-hour congestion and the need for road expansion hinges on providing effective and viable transportation options.

In this context of conflicting development goals, economics, and transit performance metrics, it becomes necessary to scrutinize choices carefully.

Reliability of Rider Estimates

Candidate scenario estimates of transit riders presented above are based on a relatively sophisticated computer travel model that reflects the following:

- Traveler socioeconomic demographics
- Trip patterns and purposes
- Observed travel behavior and mode decision relationships for Anchorage households
- Detailed door-to-door travel time and cost for both automobile and transit
- Access time from points of origins and egress to destinations
- Time spent waiting and transferring during the trip

In the process of determining these statistics, every trip that is able to use the transit system from its origin to its destination was considered.

Nonetheless, the future rider projections are estimates, not guaranteed results. The predicted rider numbers could vary by 10 to 20 percent. Other factors such as the condition of vehicles, schedule convenience, service reliability, fares, and automobile and fuel costs could influence the rider estimates. Additionally, projections for MOA growth are subject to uncertainties, specifically how much growth and how growth will occur during a 10- and 20-year forecast period.

Transit Share of All Trips

Table 7-8 compares the number of existing and 2025 estimated daily transit trips by trip purpose and time of day for the several service scenarios.

Transit scenarios with more frequent peak-period service clearly attract more riders, especially for home-based trips to and from work. The 15-minute peak-period scenarios show three times as many riders for work trips than used the 2002 bus service. These findings demonstrate that increasing transit service frequency can gain more riders and shift travelers out of automobiles. For selected corridors and destinations, the transit share of trips is higher.

Transit Impact on Relieving Congestion

The transit contribution to meeting travel demand varies by specific corridor. Frequent and fast transit service in the Glenn Highway corridor during commuting periods can potentially be a decisive element in averting the congestion anticipated from twice as much traffic in 2025. Elsewhere the effects will be positive but not as dramatic. It will be absolutely essential to increase peak-period service to at least 15-minute frequency or better to achieve any noticeable shift of automobile drivers to transit riders.

Transit Service Economics

The number of transit riders predicted for each transit scenario is one dimension of the economics picture. The cost to provide the service and the revenue earned by that service are additional dimensions. Vehicle fleet size and operating costs are determined by the bus hours of service needed during peak hours and other hours of the day.

A reliable, continuing funding mechanism for public transit must be found, and more public funding for transit will be needed to improve service and adequately meet future needs.

Table 7-8. Mode Share and Purposes of Weekday Trips by Transit, 2002 and 2025

Trip Purpose	2002	2025 Route Restructure		2025 Advanced Technology Transit System
	Existing Frequency	30-Minute Peak & 30-Minute Off Peak Frequency	15-Minute Peak & 30-Minute Off Peak Frequency	15-Minute Peak & 30-Minute Off Peak Frequency
7 to 9 AM Transit Mode Share:	**1.2%**	**1.5%**	**2.3%**	**3.3%**
Home-based work trips	1,309	2,264	3,543	5,503
All other home-based travel	1,233	866	1,438	1,612
Total trips	1,964	3,386	5,393	7,533
3 to 6 PM Transit Mode Share:	**1.3%**	**1.5%**	**2.2%**	**2.9%**
Home-based work trips	1,378	2,235	3,549	5,028
All other home-based travel	1,570	2,475	3,779	4,166
Total trips	3,462	5,389	8,422	10,305
Total Weekday Transit Mode Share:	**1.0%**	**1.6%**	**1.9%**	**2.2%**
Home-based work trips	4,205	8,728	10,894	14,622
All other home-based travel	4,373	9,631	11,393	12,134
Total trips	10,094	21,127	25,407	29,961

Note: Mode share is the number of trips by transit as a percent of all trips by all means.

Source: CH2M HILL

Expected operating revenues are derived from the number of passengers carried.

Table 7-9 presents a statistical abstract of the operating economics expected for the transit scenarios in 2025. All costs are expressed in terms of constant 2004 dollars without inflationary effects. The cumulative costs to implement each scenario during the 20-year period to 2025 would vary as service and fleet are ramped up from existing 2005 conditions and full implementation of the People Mover route restructure improvements planned for completion in 2007.

Increasing transit service will require more budget and more public funding. Public funding to improve transit service from the 2002 level to 15-minute peak and 30-minute off peak would require an additional $11.6 million in annual public funds for transit operating support in 2025 (in constant 2004 dollars).

Capital costs are not tallied in Table 7-9. They are predominantly covered by federal transit capital grants, although a local capital matching share is required. Capital costs for the different alternatives for bus route restructuring would vary from about $55 million on the low end to $130 million on the high end.

The advanced technology scenario with express bus and commuter rail components would have much higher capital costs for separate right-of-way for the corridors, transit vehicles, rail car equipment and stations, and development of the express bus corridors. The cost range for the advanced technology scenario is on the order of $170 million, if none of the express transit corridors is on separate right-of-way, to $700 million if all corridors are separate.

The findings show that the cost per rider remains close to the 2002 amount, except for the advanced technology transit scenario. Even with the very significant expansion in transit service,

The extensive advanced technology system with express bus on separate rights-of-way attracts the most 2025 riders, but costs far more than the route restructuring alternatives.

Table 7-9. Economic Considerations for Transit Scenarios, 2002 and 2025

Indicator	2002	2025 Route Restructuring		Advanced Technology Transit System
	Existing Frequency	30-Minute Peak & 30-Minute Off-Peak Frequency	15-Minute Peak & 30-Minute Off-Peak Frequency	15-Minute Peak & 30-Minute Off-Peak Frequency
Weekday riders	10,691	20,700	25400	30,000
Annual riders	3,120,567	6,106,500	7,239,000	8,604,000
Revenue hours of service	110,449	181,165	220,780	261,100
Annual operating cost	$13,023,362	$21,739,800	$26,493,600	$36,332,000
Annual fare box revenue	$2,173,942	$4,885,200	$5,791,200	$8,265,000
Estimated other revenue	$223,089	$300,000	$300,000	$300,000
Federal/state operating assistance	$1,970,492	$925,000	$925,000	$925,000
Net public cost	$8,655,839	$15,629,600	19,477,400	$26,434,000
Net public cost per rider	$2.77	$2.56	$2.69	$3.09
Peak hour bus fleet	41	67	83	99

Note: Cost and revenue in 2004 dollars.

Source: MOA Department of Public Transportation

operating productivity is sustained. Fifteen-minute service is a threshold to attract peak-period commuters who have automobile options.

Factors that Affect Transit Effectiveness in Anchorage

Is a transit system that attracts 10 to 20 percent of all trips, or even just commute-to-work trips, achievable in Anchorage? Systematic analysis of land-use development, travel patterns, and the performance of several transit schemes suggest that transit use could triple, although transit's percentage share of all trips remains single digit. It is difficult to envision a transit system in Anchorage attracting more than 40,000 to 50,000 daily riders.

Some other metropolitan areas do indeed attain significant commuter shares on transit. These cities have at least two distinguishing characteristics. First, they are much larger than Anchorage, usually with well above a million metropolitan residents. Second, they invariably have a dominant central business district, and often have a radial road network focusing on downtown. And generally, traffic congestion is more significant and parking a bigger issue than in Anchorage.

In Anchorage, transit use has increased substantially with the addition of new and enhanced service initiated in 2003 and 2004. People Mover increased service, in terms of bus trips per week, by 18.5 percent from 2002 to 2005. It is expected that ridership for 2005 will exceed 4 million passenger trips, which equates to a 28.5 percent increase accomplished in 3 years. Industry experience is that the realization of ridership gains from service changes generally takes 3 years. Additionally, People Mover productivity (riders per hour of service) increased by nearly 7 percent from 2002 to 2004. This progress clearly suggests that people will choose transit if it offers more easily accessible and faster, more-responsive service. The 14,000 passenger trips per weekday carried by People Mover reduce roadway congestion. People Mover is well on its ways to achieving its route restructuring plan goals.

The Anchorage Bowl is projected to reach a population of about 302,000 by 2025. The regional population within the MOA and Mat-Su Borough combined will be less than 500,000. Low densities will characterize most of the urbanized areas.

The downtown Central Business District is thriving, but it does not dominate the urban landscape for employment or retail activity. The Central Business District will have about 12 percent of the total projected employment in 2025. Other strong activity centers within the Anchorage Bowl

Policy commitment to significantly improved transit services is important. The first priority is creation of viable travel choices to address the adverse impacts of automobile dependency. Steady, continual focus on improving service and executing superior service delivery is needed to maintain rider gains.

include the military bases, University-Medical District, Midtown, the airport area, and the Dimond Mall.

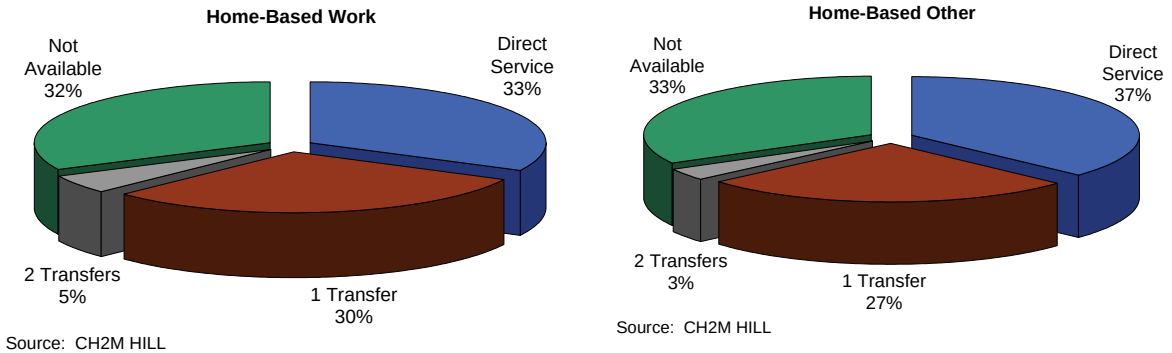
One result of the multi-center development is a broad dispersal of trips to multiple centers. Transit systems work well when large numbers of travelers from a common origin area are going to a common destination area. In that circumstance, effective corridor transit service can be provided directly between origins and destinations. Similarly, the lack of a complete road grid system directly relates to the amount of time that each transit trip takes and the transfers required to make some transit trips.

It is difficult for transit to serve travel demand to dispersed destinations, especially when the travel also originates from lower-density residential areas. A transit route generally serves a single corridor directly. Travelers in that corridor with destinations outside of it generally must transfer to a second or third route or perhaps are not able to use transit at all. When transfers are required for an itinerary, virtually all travelers with other options elect not to use transit. The transfer impediment may be mitigated to some extent by transit hubs and timed schedule coordination among routes, but it remains an obstacle to attracting riders who have other travel choices.

Two illustrations serve as examples of the complexity and difficulty that Anchorage development patterns create for direct transit service without the need to transfer to one or more different routes. In 2025, nearly 77 percent of the total Anchorage Bowl population and 72 percent of jobs are anticipated to be within walkable access of transit routes. These statistics suggest that the probability of a traveler being within walking access of both home origin *and* an employment-based destination is no more than the product of the home access and destination access probability percentages, or 56 percent. And that maximum probability can be obtained only if each transit route directly serves all accessible homes and all accessible jobs.

Figure 7-26 shows the percentage of forecasted 2025 trips for home-based work and for home-based other trip purposes by transit service availability. For one-third of work or other trips, no transit connection is available. Of all home-based work trips, 35 percent would require one or more bus transfers if transit were used; about 30 percent of home-based other trips would have to transfer. Travelers who have access to an automobile are unlikely to use such a transit alternative. The trips that can be made without bus transfers are candidates to attract riders who have a choice. For those individuals, the time and cost of transit travel compared to automobile travel will generally dictate their transit decisions. More frequent transit service—15 minutes or more frequent—and direct, non-transfer routing are the thresholds needed to attract these commuters.

Figure 7-26. 2025 Transit Availability for Trips in 2025



Source: CH2M HILL

Source: CH2M HILL

Is Rail Line or Express Bus Corridor a Fit in the Anchorage Bowl?

It is a natural and common human trait to look for a "technology fix" or "silver bullet" solution to problems. Proposals have been advanced for a light rail line or express bus corridors within the Anchorage Bowl. But analysis of Anchorage Bowl trip patterns and densities along specific single-line corridors demonstrates no single corridor has sufficient demand—tightly aligned origins and destinations—to make a rail line or an express bus corridor a viable solution for Anchorage. High cost, as well as modest patronage and nominal impact on corridor traffic, pose an economic hurdle. Rather than one or two high-technology corridors, the compelling need is for a network of transit routes on most primary corridors to minimize transfers and operation of transit service with closely coordinated schedules to reduce time when transfers are necessary.

Anchorage 2020 stresses that travel choice is an important goal so that residents are not, by necessity, required to drive everywhere. The foundation for travel choice is frequent transit service to all mid-density and higher-density areas.

Elderly and Disabled Transportation Needs

The 2000 U.S. Census reported more than 34,000 persons with disabilities in Anchorage, or more than 13 percent of the total MOA population. In addition, about 5.5 percent of the MOA population was 65 years of age or older. State of Alaska statistics indicate that 46 percent of this senior group has a disability.

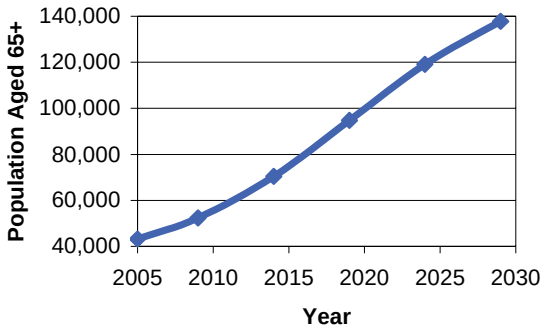
Not all persons with disabilities or elderly persons are transportation-limited. But the scale of the numbers demonstrates there is a community-wide need for special transportation services to enable older persons and disabled persons to get around and stay connected and involved in the community. Mobility support services need to be coordinated through the collaboration of many participants and providers from medical, social, faith-based, human services, and transportation service entities.

Special mobility service needs can be expected to increase with an aging population. Alaska Department of Labor projections indicate the number of seniors will increase by more than 200 percent between 2000 and 2029 (Figure 7-27).

The MOA AnchorRIDES program provides demand-responsive transportation service for seniors and disabled persons. The number of annual rides provided has grown steadily over the years, reaching 196,000 in 2003 (Figure 7-28). Operating costs of $2.67 million in 2003 far exceeded service revenues. Funding is provided primarily by the MOA general fund and the Alaska Commission on Aging; rider fares, donations, and Medicaid also contribute to revenues.

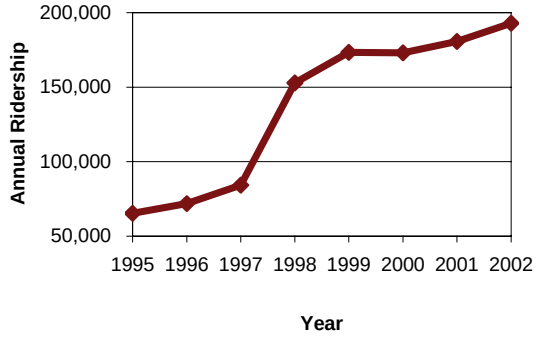
More senior and disabled persons will require specialized transportation services in the future. It will be difficult for AnchorRIDES alone to meet the expanded needs. More private-sector involvement is needed; public-private partnerships and multi-provider collaboration should be embraced. AnchorRIDES will need to exploit advanced

Figure 7-27. Alaska Population Projection, Age 65 and Older, 2000–2029



Source: Alaska Department of Labor, "Population Projections, 2000-2029," Alaska Economic Trends, February 2005

Figure 7-28. AnchorRIDES Trends, 1995–2002



Source: MOA Department of Public Transportation

dispatching, vehicle location, scheduling, and routing logistics technologies to contain costs. The operation of AnchorRIDES likely will need to increase by about 50 percent over the LRTP period.

Conclusions and Approaches for Enhancing Transit Service

The Anchorage 2020 comprehensive plan positions transportation as a significant policy and strategy component to help achieve desired goals and serve future development. In short, the comprehensive plan articulates a future with greater emphasis on transportation choice, more frequent transit service, organization of land development patterns to strengthen opportunities to gain more transit riders, and generally, a reduction in automobile dependency.

A core mission of public transit is to ensure that all segments of our community have transportation mobility and access to community opportunities.

Another mission is to help reduce congestion by offering a viable choice to as many travelers as possible. Better transit service is a requisite to attract riders who could use automobiles.

In identifying the scope of the LRTP public transportation element, two important challenges are recognized:

- Funding determines what level of transit service is possible.
- Public policy and perceptions of transit service value define public willingness to support for funding.

Attracting more riders and sustaining or improving service productivity are the key benchmarks for transit performance. More frequent transit service and improved service delivery quality will increase riders, as has been clearly demonstrated by recent People Mover productivity gains.

For the public transit element, this LRTP recommends increasing the frequency of peak-period transit service to 15 minutes on seven better-performing routes and initiate express bus services in the Glenn Highway corridor. Rigorous attention to fine-tuning operations, scheduling, on-time reliability, operating efficiency, and superior service delivery is advocated. Similar attention to detail is recommended for specialized AnchorRIDES transportation services. Chapter 8 elaborates on these guiding principles for the LRTP public transportation element.

Pedestrian and Bicycle System

Introduction

Walking and cycling paths that are accessible, convenient, and well connected contribute to the quality of life in the MOA. They provide relaxation, recreation, exercise, and the opportunity to enjoy nature, as well serving to transport individuals to schools and work.

Anchorage citizens take pride in their trail system. Trails consistently get high marks in polls, public discussions, and planning inputs. Everyone seems to agree they are important and an integral component of the transportation system; they support travel mobility for our children going to and from school, for walking and cycling trips on recreational outings, and for travel to work. Illustrations in Chapter 5 show the purposes of pedestrian and bicycle trips in Anchorage.

Anchorage 2020 policies support a walkable city with a concentration of services and facilities in town centers, transit corridors, and employment centers. The plan also advocates increased mobility choices, including safe walking routes and trails. Through Anchorage 2020, the community has stated that easy and enjoyable walk and bike opportunities enhance quality of life, promote healthy lifestyles, support neighborhood safety, and add community value.

Current Planning, Funding, and Maintenance

Ongoing actions to maintain and improve Anchorage pedestrian and bicycle facilities are undertaken through MOA capital improvement bonds and AMATS programming of local, state, and federal funds.

The MOA CIP and the AMATS TIP planning process identifies pedestrian and bicycle facility improvements and prioritizes projects with local and community council input.

Maintenance of trails and sidewalks is conducted by the State of Alaska for state-owned roads and the MOA for city roads and park trails. Non-profit user groups assist in maintenance. The MOA *Areawide Trails Plan* (1997) is the guiding

document for existing improvements and building new segments.

Evaluation of Future Needs

Anchorage 2020 articulates policies and provides advocacy for inclusion of non-motorized travel choice as a strongly valued community asset. Public inputs and comments to the LRTP process express a similar, strongly held position.

The trails and sidewalks that would be provided under planned roadway projects were charted and represent more than 185 miles of additional or improved pedestrian and bicycle network.

Connections to promote trail use and better serve neighborhoods were assessed. The following missing links for sidewalks and trails were identified:

- Along arterials and collectors, 95 miles
- In all town centers (within one-quarter mile), 13 miles
- Along all transit corridors (within one-quarter mile), 23 miles
- In all employment and redevelopment centers, 11 miles
- Within one-quarter mile of schools, 328 miles
- Finally, improvements in the MOA *Areawide Trails Plan* (1997) were identified. The specific improvements were considered in two groupings:
- Top 50 trails from the plan
- All trails in the plan

Identification of Solutions

Facility Plans

Scenarios combining various features were developed. All scenarios present additional improvements and assume that the trails and sidewalks that are part of the road projects are implemented:

- All missing links on arterial and collector roads, all transit corridors missing links, and elementary school missing links
- Scenario 1 above, plus the top 50 trails from the trails plan
- Scenarios 1 and 2 above, plus missing links in employment and redevelopment areas
- Scenarios 1, 2, and 3 above, plus all trails in the trails plan

Each scenario was evaluated for merit of physical preservation and rehabilitation, ability to accommodate mobility and connectivity, and impact on safety. Figure 7-29 shows pedestrian and bicycle crash data from 2003 and 2004.

The most beneficial scenario of pedestrian and bicycle facility improvements is discussed in Chapter 8. Figure 7-30 shows the recommended pedestrian and bicycle facilities.

Planning Policies and Priorities

The Anchorage Bowl sidewalk system is not covered in the *Areawide Trails Plan* (MOA, 1997), and recognition of the need for sidewalk planning prompted a policy "call for implementation" of a pedestrian plan in Anchorage 2020. Many of the first neighborhoods built in Anchorage have extensive and complete sidewalk networks; many of the newer subdivisions have no sidewalks. Often pathway easements are required in subdivision plats during the zoning process to enable connectivity between neighborhoods and public facilities such as schools. These pathway easements frequently have been allowed to be vacated or appear to be nonexistent because of established vegetation or landscaping and structures introduced by adjacent owners.

The LRTP citizen Roundtable Committee identified safe walking routes to schools and transit stops and connecting existing trails among its highest priorities. Input from a bike and pedestrian workshop and other public meetings yielded the following specific policies as priorities:

- Initiate a pedestrian plan as called for in the Anchorage 2020
- Fund a community council inventory and mapping database of missing neighborhood links (sidewalks and bike trails) for CIP funding
- Develop policy for inclusion of trails and sidewalks on collector and arterial roads
- Develop a policy in the MOA Title 21 land use regulations for sidewalk requirements in town centers, transit corridors, and employment centers
- Develop MOA Title 21 and MOA *Design Criteria Manual* (2005) design standards for sidewalks, trails, and amenities
- Develop funding mechanisms for sidewalk and trail maintenance, including snow clearing

Pedestrian and Trail System Cost Estimates

Previous AMATS, MOA, and DOT&PF cost estimates were assembled to provide planning-level cost estimates for projects. Costs and funding are discussed in Chapter 9.

Conclusions and Approaches for the Pedestrian and Bicycle System

Pedestrian and bicycle improvements included in the road projects and other facility enhancements are needed. The LRTP recommendations for the pedestrian and bicycle elements focus on expanding the sidewalk network, crosswalks, street furniture, bus shelters, and landscaping. The primary thrust of improvements is to complete major missing links, preserve and rehabilitate the already built infrastructure, and establish several new major trail corridors. More is desired than can be funded with foreseeable resources. Therefore, priorities and phasing of within future funding is required. Chapter 8 presents more information for recommended pedestrian and bicycle improvements.

Figure 7-29. Pedestrian and Bicycle Crash Data, 2003–2004

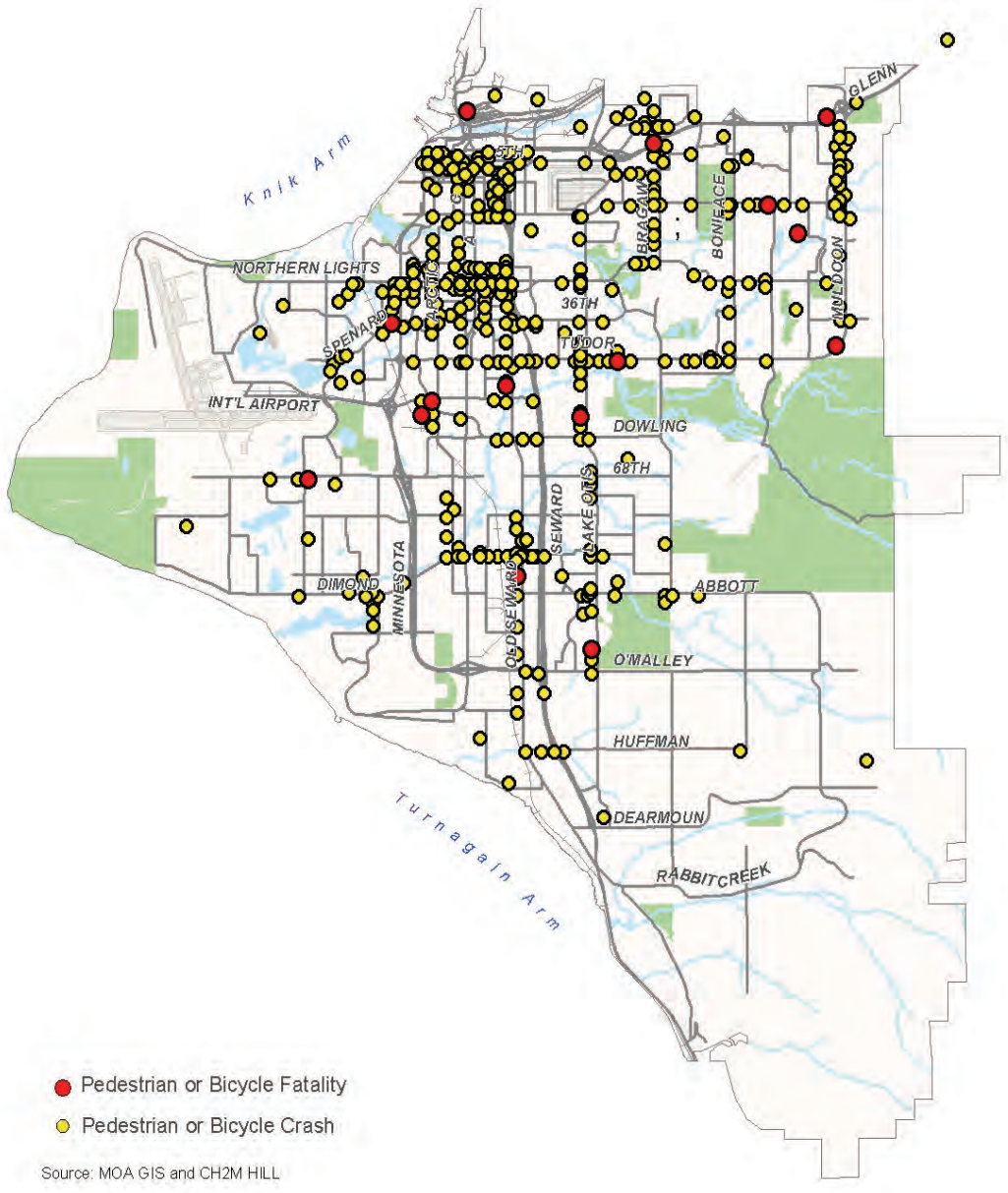
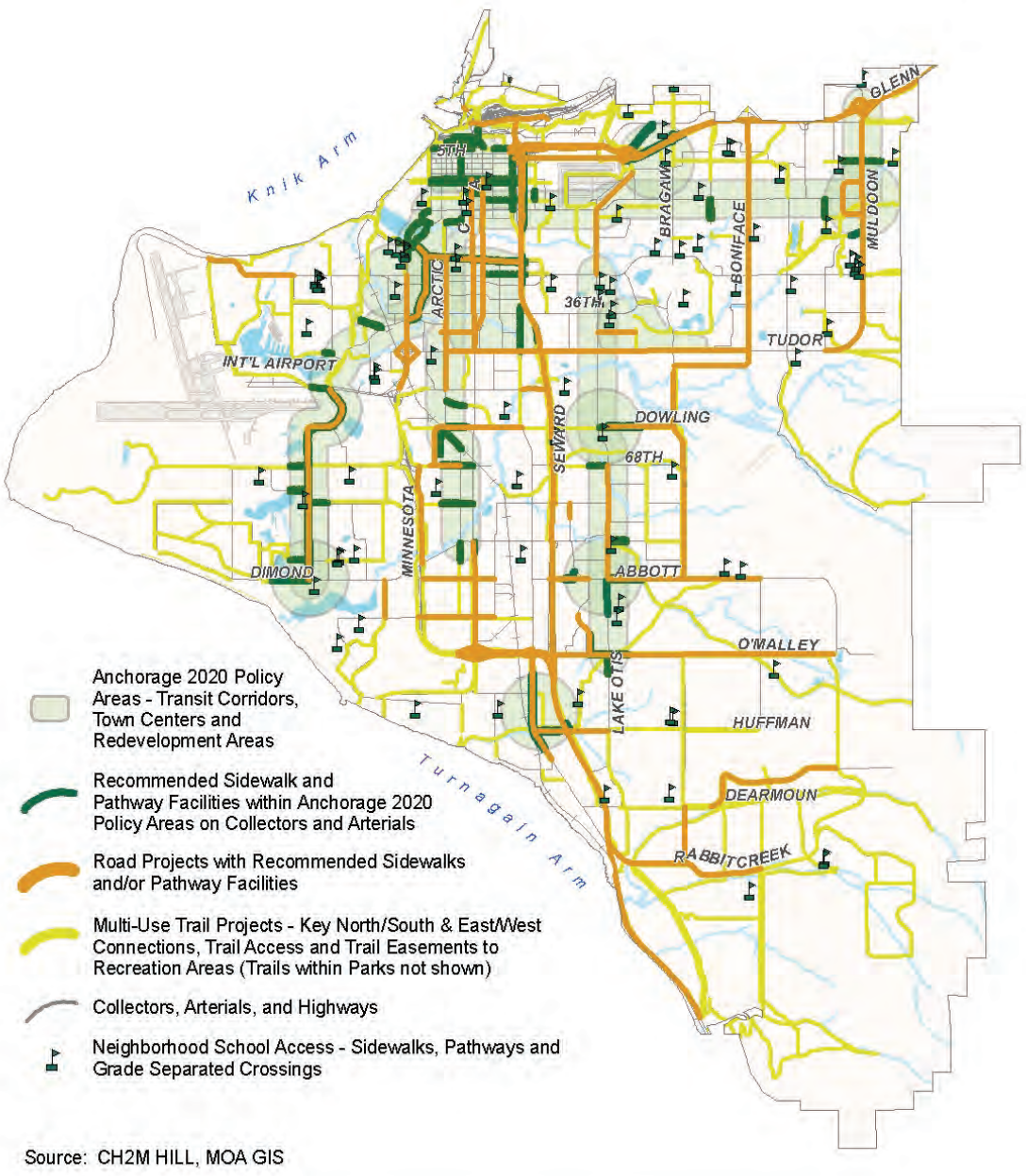


Figure 7-30. Recommended Pedestrian and Bicycle System



Source: CH2M HILL, MOA GIS

Freight Distribution

Ensuring Efficient Freight Movement

Efficient freight handling and movement is universally important. These activities supply consumer goods to households and move the commerce that sustains local, state, and national economies and security. The residents of Anchorage and all of Alaska rely heavily on ocean and air transport far more heavily than other urban regions and states. That reliance increases the importance of efficient freight transport. With only nominal manufacturing in Alaska, most goods need to be imported. The Port of Anchorage and TSAIA are the dominant freight termini for imports to Anchorage and the rest of the state. Distribution from these intermodal terminals is primarily by motor carriers over the road network into, out of, and within the Anchorage Bowl. The Alaska Railroad also plays an important role in distribution of consumer goods, natural resources, petroleum products, and heavy goods.

Port of Anchorage

Two Pacific Northwest carriers bring four to five ships weekly to the Port of Anchorage. Ships from Japan and Korea also use the Port of Anchorage, transporting construction materials or loading refined petroleum. Tankers supply jet fuel for airport operations, and barges load petroleum products for Western Alaska. (See Chapter 5 for freight volumes.)

The dramatic expansion in global economic trade is pressing ever-larger vessels, capable of

carrying more than 3,000 container units, into service. To sustain its market and future services, the port infrastructure must accommodate larger ships and provide larger and faster cranes for container handling. Improved transportation links to and from the Port of Anchorage are needed to distribute goods to local, regional, and statewide establishments, as well as to support military and homeland security requirements.

A planned expansion project at the Port of Anchorage includes a new 8,880-foot dock to accommodate larger vessels, crane and cargo handling infrastructure, improved road and rail links, and terminal facilities to better serve the barge trade. Expenditures of roughly $400 million are anticipated for this phased expansion.

Road access to the Port of Anchorage is difficult because of topography and the presence of the railroad yard and mainline tracks between the marine facilities and the major road network. This configuration results in heavy vehicle and tractor trailer combinations being routed through the downtown area.

This LRTP recommends improving Port of Anchorage access with a new connection near the Ingra-Gambell couplet and ramps to a new freeway tying the Glenn and Seward highways together. The new connection enables both north and south freight distribution from the port.

Alaska Railroad

The Alaska Railroad Corporation operates freight and passenger services between Southcentral and Interior Alaska. Headquarters facilities are located in the Ship Creek area and include corporate offices, the main intermodal terminal, and yard facilities. The railroad moves bulk resource products (primarily gravel and coal), petroleum, and military shipments, as well as containers with general cargo. (See Chapter 5 for freight volumes.)

Federal Railroad Administration funds and Federal Transit Administration, Sections 5307 and 5309, funding have been used by the railroad for passenger-related projects.

Table 7-10 lists Alaska Railroad Corporation capital projects slated for completion between 2004 and 2010 and identifies their costs. These projects were identified in a planning process focusing on long-term (30 years) improvements. Planned improvements include the following:

- Continued development of passenger facilities
- Pedestrian improvements and enhancements
- Construction of additional track
- Continued realignment of tracks within the existing rail corridor
- Rolling stock rehabilitation
- Signalization

Roadway At-Grade Rail Crossings

There are currently 19 at-grade roadway crossings of railroad tracks within the AMATS study area. As the urban area grows and traffic increases, rail-roadway conflicts will become a bigger concern. Traffic counts for 2004 show that four rail crossing locations have daily traffic in excess of 15,000 vehicles:

- C Street
- Arctic Boulevard/Dowling Road
- Spenard Road
- International Airport Road

These four locations are on a list of roadway at-grade rail crossings with 2025 traffic volumes expected to exceed 15,000 vehicles per day. This LRTP recommends (Chapter 8) locations for priority roadway-rail grade separations. Two priority roadway-rail grade separations—Artic Boulevard/Dowling Road and International

Photo courtesy of CH2M HILL

In several locations, roadways and trails cross railroad tracks.

Table 7-10. Priority List of Alaska Railroad Capital Projects for 2004 to 2010

Project Name	Funding	Cost (millions of $)						
		2005	2006	2007	2008	2009	>2010	Total
Centralized Traffic Control	FRA	5.7	7	0	0	0	0	12.7
Anchorage Operations Center	FRA	9.5	0.5	0	0	0	0	10.0
Ship Creek Intermodal Facility, pedestrian amenities, covered walkways, parking garages, etc.	FTA	22	32	5.5	5.5	0	0	65.0
Passenger Equipment & Storage Shop – Anchorage Yard	FRA, FTA	3	5	30	15	15	93	161.0
Anchorage Car Shop	FTA	0	0	7	64	0	0	71.0
Ship Creek Trail	FTA	0.5	0	0	0	0	0	0.5
Rail Capacity Improvements, Mileposts 110–114	FRA, FTA	1	20	2.4	21.6	0	0	45.0
Capacity Improvements – Eagle River to Knik River	FTA	4	0	0	0	0	0	4.0
Technology upgrades/implementation	FRA	5.4	7	0	0	0	0	12.4
Locomotive Fueling & Service Facility	ARRC, FTA	2	14	0	0	0	0	16.0
Yard Improvements for Passenger Operations – Anchorage	FTA	0	0	0	2	2	3	7.0
Passenger Facilities, equipment and safety improvements	FTA	8.2	16.1	0	0	5.1	50	79.4
Total		**61.3**	**101.6**	**44.9**	**108.1**	**22.1**	**146.0**	**484.0**

ARRC = Alaska Railroad Corporation
FRA = Federal Railroad Administration
FTA = Federal Transit Administration

Source: Alaska Railroad Corporation

Airport Road—are accomplished with recommended road projects. The remaining two—C Street and Spenard Road—need to be planned.

These grade-separation projects improve the efficiency of the road system and the rail system. Although grade separations of the Alaska Railroad tracks provide safety benefits, the safety records for Anchorage rail crossings have been excellent and well above national averages.

In addition to the safety hazards at roadway-rail crossings, traffic delays caused by train movements will become more pronounced. Interim safety reinforcement should be considered to enhance safety. Implementation of electronic motorist warning systems at rail crossings can provide greater safety assurance until roadway- rail grade separations can be completed.

Trucks and Freight Distribution

By far the largest share of freight shipments are carried by trucks. Roads on the National Highway System (Glenn Highway, Seward Highway, Minnesota Drive, International Airport Road, and Tudor Road) have the highest truck traffic. Truck volumes on other major arterials such as C Street and Northern Lights Boulevard are significant, too.

Truck traffic is projected to increase from 49,400 daily in 2002 to nearly 65,000 in 2025, a gain of about 31 percent. Figure 7-31 shows expected origins of truck trips (productions) by traffic analysis zones (TAZs). About three-quarters of all truck trips are single-unit vehicles; the remainder are combination tractor-trailer units. Trips made by the latter type are primarily linked to the Port of Anchorage, TSAIA, or the railroad. Other truck-activity centers are the major big-box retail outlets, manufacturing and wholesale facilities, quarries, and industrial lands.

Road Projects That Assist Freight Distribution

Many road projects discussed in the road section of this chapter are important for freight distribution and truck movements. Figure 7-32 maps road projects that benefit freight movements. Overall reduction of traffic congestion on the road network helps freight movement. The following are particularly favorable enhancements for freight distribution:

- C Street viaduct improvements
- New port access from Glenn Highway through extension of the Ingra-Gambell streets couplet
- Connection of Glenn Highway and Seward Highway
- Completion of C Street through to the Minnesota Drive interchange
- Extension of Peninsula Circle to Lang Street
- Minnesota Drive freeway interchange with Seward Highway

Commercial Vehicle Systems Network

The Commercial Vehicle Intelligent System Network (CVISN) is an integrated intelligent transportation system that supports commercial vehicle operation. CVISN assists in motor carrier operations, enhancing communication, safety, and permit acquisition, as well as roadside safety enforcement and weigh station operations. The following are some of the components used in Alaska:

- Electronic weigh-in motion systems
- Automated vehicle classification count stations
- Motor carrier safety inspection data exchange
- Electronic oversize or overweight permit processing
- Wayside safety detection and warning systems such as vertical clearance or rollover indicators at critical sites

Significant progress has been made in deploying CVISN elements, and these efforts should continue and be completed throughout the MOA. This LRTP recommends (Chapter 8) continuing funding to pursue ongoing implementation.

Design Standards for Commercial Vehicles

Although motor carrier equipment size has increased, design standards have remained the same. Trailer units that are 53 feet long were rare when design standards were introduced, but now are common. State of Alaska motor carrier regulations allow long-combination vehicles (combinations of tractor-trailer units up to 120 feet in length) and 53-foot trailers on the National Highway System and as far as 5 miles off the National Highway System for access. Triple cargo-carrying combination units that extend even longer are now allowed on the Glenn Highway and the Parks Highway with seasonal permits.

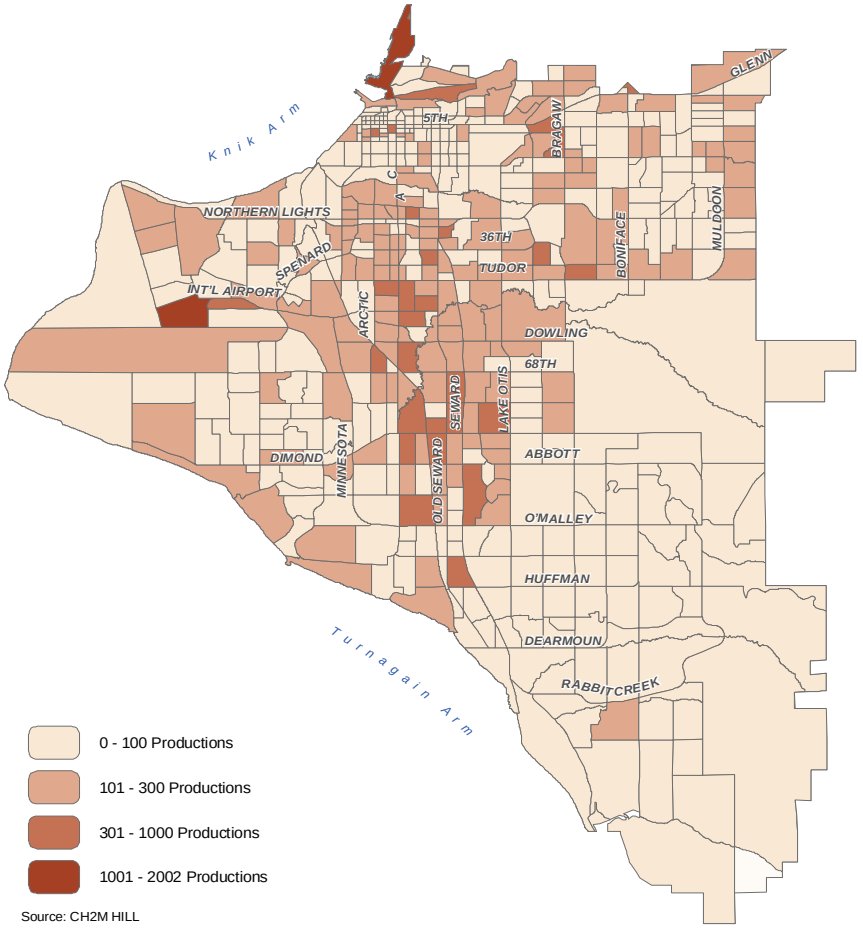
Different regulatory provisions are applied by the MOA and the State of Alaska. This disparity creates a problem for road designers and for the trucking industry.

Intersection and roadway design standards need to account for commercial vehicles, accommodating large vehicle sizes, turning radii, and other operational characteristics of trucks. A review of design standards and agreement on consistent MOA and state practices and regulations for commercial vehicles is needed.

Freight Community Liaison

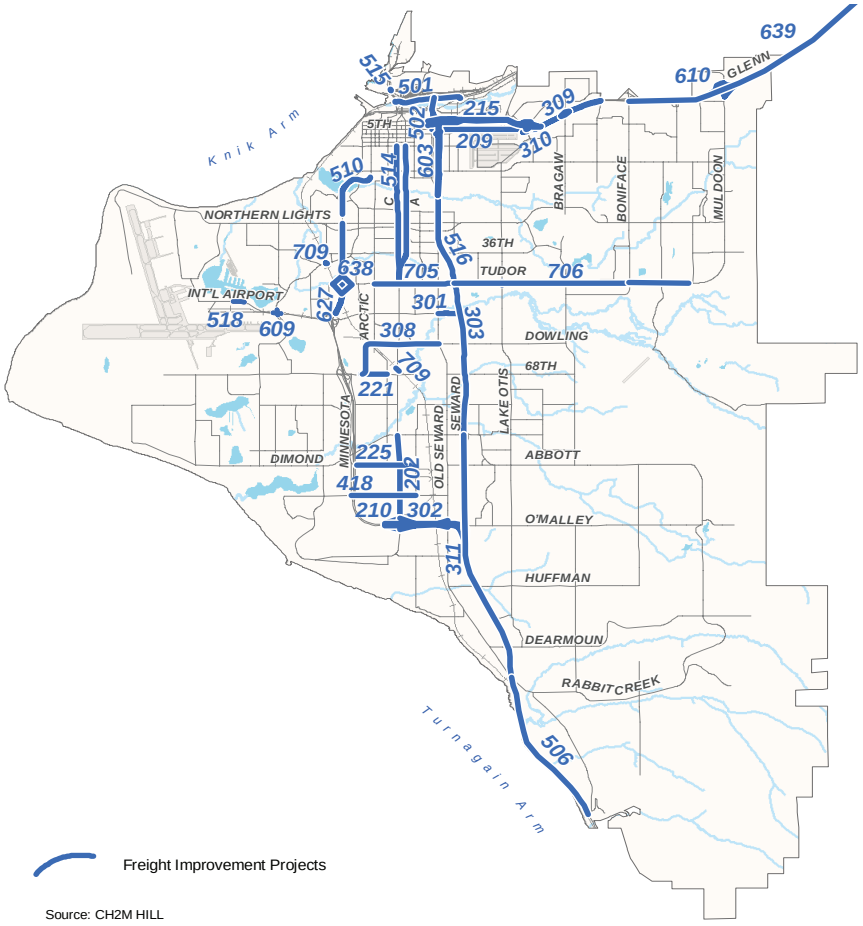
Many transportation policy, design, and operation issues affect the trucking community and their constituency. Industry input on road and intersection design treatments, operational issues, routing, and transportation concerns that affect truck operations can be beneficial. A forum is needed to enable freight industry interaction and communications, airing of concerns, and discussion of policies and issues. The LRTP recommendations in Chapter 8 incorporate freight industry collaboration with AMATS.

Figure 7-31. 2025 Truck Origin (Productions) by Traffic Analysis Zones



Source: CH2M HILL

Figure 7-32. Road Projects That Enhance Freight Distribution



Source: CH2M HILL

The numbers on the map identify specific projects considered.

Regional Connections

Railroad tracks and only two road connections link Anchorage by land to the north and south, serving freight distribution and travelers. Components of the National Highway System, the Glenn Highway and Seward Highway serve northbound and southbound travel, respectively. Major improvements on these two highways are incorporated in LRTP recommendations (Chapter 8). Other key access roads connect these regional highways to both TSAIA and the Port of Anchorage.

The community is considering two other regional connection concepts: a Knik Arm crossing and commuter rail service.

Knik Arm Crossing Studies and Implications

Only two roadways currently link Anchorage to elsewhere, but planning studies are in process for a bridge across the Knik Arm to the Mat-Su Borough. Currently the Knik Arm crossing project is in an environmental analysis phase; information about its alignment, configuration, components, costs, and other features are not yet known.

Critical questions and policy decisions will be addressed after more information has been gathered. How would a Knik Arm crossing affect the land use and growth patterns envisioned by Anchorage 2020? How would it affect the Anchorage housing market? Will broader urban sprawl be encouraged and enabled by transportation access to a large expanse of undeveloped land?

The magnitude of traffic or impacts of Knik crossing traffic on the LRTP program cannot be identified at this time. The potential cost burden and community impacts of supplemental projects needed to tie the crossing project into the Anchorage road network also cannot be anticipated at this time.

All of these topics need to be covered and documented in the federally mandated environmental analysis under way. The LRTP endorses completion of environmental and engineering studies and documentation for the Knik Arm crossing concept. Information about the alignment, configuration, components, costs, funding, and other features of the project can then be used by the MOA and AMATS to support future decisions.

Regional Public Transportation Services

The Glenn Highway corridor links Anchorage with Chugiak-Eagle River and the Mat-Su Borough. The only regional public transportation service operating regularly between the Mat-Su Borough and Anchorage is the MASCOT bus service. It offers two trips a day from the Mat-Su Borough.

The Glenn Highway corridor is unusual in that there is no alternative or back-up route in case of crashes or overcrowding. During commute hours, projected 2025 travel demand will exceed the existing corridor capacity, unless remedies are implemented. Figure 7-33 shows the existing road capacity and projected traffic demand along the Glenn Highway corridor from Eklutna Road to Boniface Road. Traffic demand on the Glenn Highway corridor will exceed capacity in 2025 from Mirror Lake to Boniface Road.

Commuter Rail Services

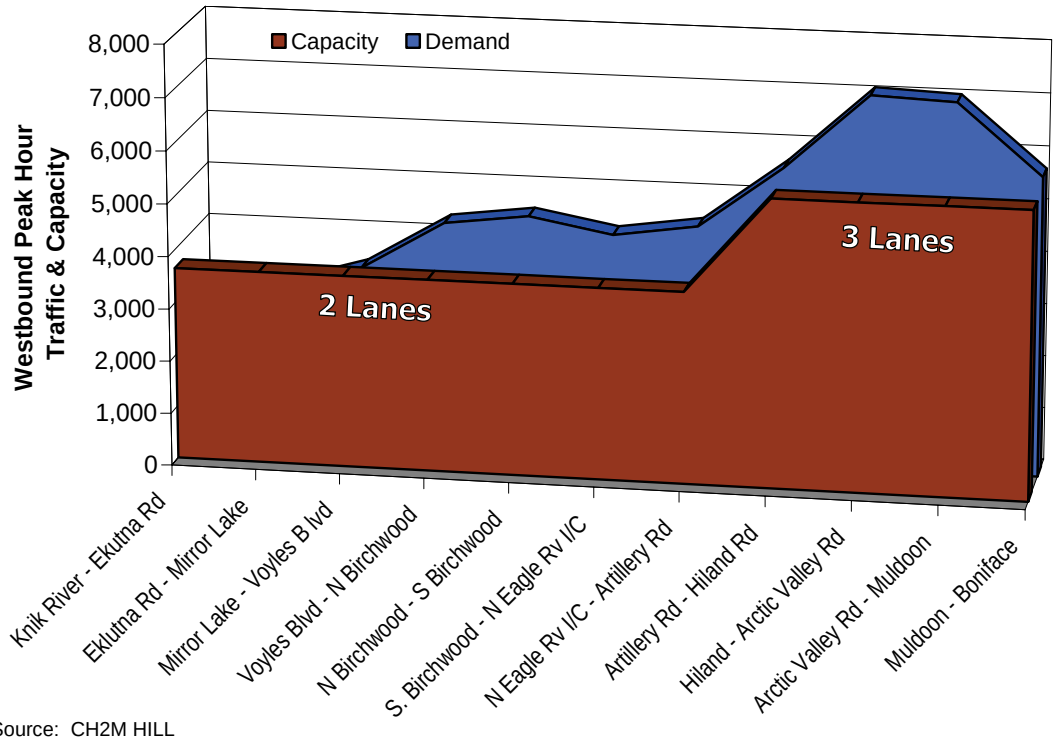
The Alaska Railroad mainline runs parallel to the Glenn Highway from Wasilla and other communities, providing the prospect of a commuter rail option for travel into and out of Anchorage. Feasibility of commuter rail service between the Anchorage Bowl and the Mat-Su Borough has been studied. (One analysis is *South Central Rail Network Commuter Study and Operation Plan*, by Wilbur Smith and Associates et al., January 2002.) Although there are advocates for implementation of a commuter rail service, the recent feasibility studies do not present a compelling case.

Two studies conducted in 2000 produced rider commuter rail rider estimates for 2005 of 152,000 to 190,000 annual riders for weekday service, or 600 to 750 riders per average weekday. For 2015, rail patronage was forecast at 230,000 annual riders, equivalent to about 900 riders per weekday.

Commuter rail passenger estimates were predicated on two morning trains from Wasilla to Anchorage and two trains from Anchorage to Wasilla in the afternoon, plus limited off-peak service. Travel by rail from Wasilla to the Ship Creek Intermodal Terminal in Anchorage would require about 1 hour. Stations in Chugiak-Eagle

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Figure 7-33. Managing Demand and Available Capacity on the Glenn Highway, 2025 Morning Peak Hour



Source: CH2M HILL

River provide opportunity for commuters there to use rail service also. Service is assumed to expand 30 percent by 2015 and 75 percent by 2025. Coordinating bus service in the Anchorage Bowl enabling train commuters to get to destination sites beyond walking distance from the rail terminal is assumed to be available.

Table 7-11 summarizes estimated outcomes for commuter rail services between Wasilla and Anchorage between 2005 and 2025. Rail service may take from 600 to 1,750 vehicle trips off the Glenn Highway, mostly commuters in peak hours. Net public costs (subsidy) to support the estimated rail service range from $2.66 million to $4.87 million per year (in 2004 dollars). The subsidy works out to be almost $10 per passenger on the optimistic end and more than $18 per passenger on the pessimistic end.

For commuter rail service to be implemented, a number of steps would be required. Foremost is determination of funding responsibilities, mechanisms, and sources. In parallel with the funding steps, creation of an institutional structure and negotiation of management, operations, and sponsorship agreements among the several affected parties is required. Other prerequisite activities include project development planning; engineering, and environmental analyses; operations detailing; equipment procurement and customization; station and facilities development; service specifications; patronage, pricing, marketing, and revenue projection refinements; connector transit service integration arrangements; and related multi-government coordination.

Conclusions and Approaches for Enhancing Regional Connections

Clearly, major issues are related to regional connection facilities. The rapid growth in the Mat-Su Borough and Chugiak-Eagle River will put significant strain on the Glenn Highway in the absence of other actions. A Knik Arm crossing would relieve some traffic pressure on the Glenn Highway, but many unknowns still characterize the Knik Arm crossing proposal.

Commuter rail implementation could assist in the Glenn Highway corridor. See Table 7-11. And new regional bus service could contribute. Its initiation would require development of funding resources and mechanisms, as well as many of the same development steps noted above for commuter rail service.

The solution to improving regional connections lies in greatly improved transit service, spot improvements to relieve traffic bottlenecks,

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Table 7-11. Estimated Operating Outcomes for Commuter Rail

Component	2005	2015	2025
Daily riders	600–750	900	1,050–1,750
Annual riders	152,000–190,000	231,000	266,000–439,000
Annual passenger revenue ($1,000s) [a]	$532–$686	$809	$930–$1,537
Capital cost ($1,000s)[a]	$32,000		
Annual operating cost ($1,000s)[a, b]	$3,350	$4,310	$5,800
Annual public funding ($1,000s)[a]	$2,664–$2,818	$3,501	$4,263–$4,870
Public funding per rider	$14.02–$18.54	$15.16	$9.72–$18.34

[a] Expressed in 2004 dollars.

[b] Assumed initial rail service in 2005 is two train schedules inbound in the morning and outbound in the afternoon. Service by 2015 is increased 30 percent and at 2025 by 75 percent.

Sources: CH2M HILL and Wilbur Smith Associates (*South Central Rail Network Commuter Study and Operation Plan*, 2002)

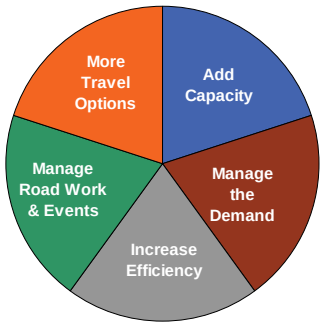
deployment of advanced technologies for transportation system management, and aggressive travel behavior incentives. Collectively, tightly coordinated strategies and programs can be packaged together to meet future travel demand. High investment stakes and substantial impacts or consequences are among the long-lasting effects; carefully, well-reasoned policy and strategy execution will be important.

Congestion Management

Congestion management is a compendium of policies, strategies, and actions designed to address the root causes of congestion and to reduce or relieve its magnitude. Congestion management encompasses land use and city form that reduces travel necessity; reduction in dependency on automobiles, especially solo-driver automobile travel; promotion of travel options and availability of non-automobile modes (transit, carpooling, and vanpooling) and non-motorized transportation; more efficient management and operation of existing systems; and calming traffic in neighborhoods.

Coping with Congestion

Traditional ways of coping with congestion are to add road capacity or increase transit service, largely because the automobile remains the overwhelmingly dominant mode of travel in most urban areas across the United States, including the MOA. The cumulative consequences of vehicle dominance are increasingly receiving serious attention and policy debate.



Civic officials and citizens across the nation are confronting congestion by crafting transportation and urban growth management policies, strategies, and actions to guide development, reduce vehicle dependency, and control congestion.

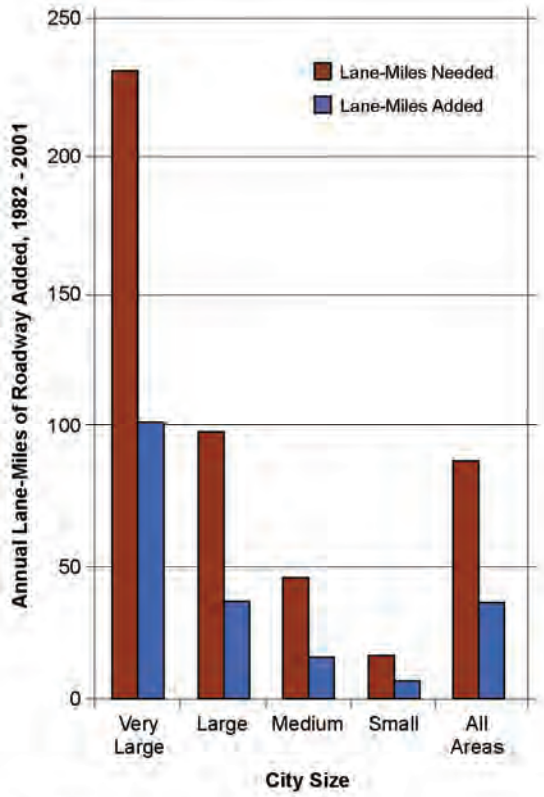
It is unrealistic to presume that personal automobiles will not continue to be widely used. But other modes need to have larger roles. The MOA can leverage opportunities and nurture a future cityscape with attractive urban design and broader travel choices. Careful and judicious policies, strategies, and investment initiatives are needed.

Public interest in nurturing alternatives—walking, cycling, public transit, and telework opportunities—is broadening. Aging population, rising fuel costs, the health and well-being of cities, and other demographics suggest the need for more balanced options and bolstering availability of alternative modes.

Limitations of Infrastructure Additions

Congestion and traveler delay has increased dramatically in most U.S. metropolitan areas over the past two decades. The response to worsening congestion has first been to build (primarily roads and transit systems). But deficiencies have worsened. Figure 7-34 illustrates the historical gap between needs and actual capacity increases by

Figure 7-34. Historical Gap Between Capacity Needs and Actual Projects for U.S. Cities, 1982–2001



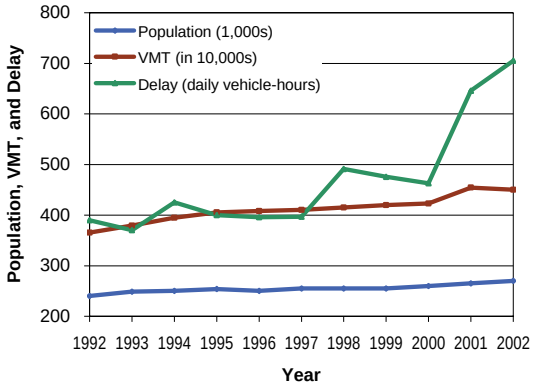
Source: Texas Transportation Institute

measuring annual hours of delay. (More delay means less capacity available to meet demand.) The lesson from evidence across the nation is emphatic—capacity cannot be added fast enough to build our way out of congestion. Other strategies are needed.

Consequences of additional capacity include the financial burden of continuing road construction and expansion. But much broader effects on neighborhoods, communities, city structure, health, and other urban amenities are also concerns. Wider streets, more traffic, expansive parking lots, noise, air pollution, congestion, unpleasant walking environments, isolation of non-driver population segments, traffic-related injuries and fatalities, hazards around school environments, pedestrian and bicycle safety conflicts, intrusion in neighborhoods, health impacts … the list of consequences is unending. Street scale and aesthetic character, neighborhood walkability, noise levels, and even urban character eventually succumb to vehicles and traffic.

Congestion growth in Anchorage has been moderate, generally mirroring patterns observed in other smaller North American cities. In recent years, however, the system has begun nearing capacity. Delay (measured in daily vehicle hours of travel) has been growing markedly faster (Figure 7-35). This pattern has been repeated elsewhere; the *2003 Annual Urban Mobility Report*, by David Shrank and Tim Lomax of the Texas Transportation Institute, Texas A&M University (2003), notes that "the average annual delay for every person in 75 urban areas studied climbed from 7 hours in 1982 to 26 hours in 2001." Anchorage is now on the first part of that accelerating curve for hours of vehicle delay.

Figure 7-35. 1992-2002 Annual Peak Hours of Traveler Delay



Source: 2005 Urban Mobility Study (Texas Transportation Institute)

Strategies to Reduce Travel Demand and Congestion

Three broad strategies characterize efforts to reduce travel demand and congestion: land use, transportation system management (TSM) and travel demand management (TDM).

Land Use. Community land use and urban form within the Anchorage Bowl reflects a distinct pattern of development that is the legacy of decisions spanning 50 years. By 2002, the MOA population was 270,000 and about 80 percent of the available, usable land space was occupied. Within the Anchorage Bowl, five major retail centers (Downtown, Midtown, Northway, Muldoon, and Dimond Center) attract commercial activity. Jobs are concentrated at the military bases, airport area, Midtown, University-Medical District, Downtown, and Dimond Center.

Foreseeable growth by 2025 will add approximately 30 percent more housing units and employment in the MOA. Nearly one-third of that growth is already defined by building permits and known planned projects. Clearly, the pattern already established will be the dominant anchor for the future.

Identification of Anchorage 2020 policies and implementation of Title 21 Land Use Codes are efforts to change land use to encourage fewer single-occupant vehicle trips.

Anchorage is also a city with highly valued natural open spaces and large special-use sites that significantly define its land uses: TSAIA, Elmendorf and Fort Richardson military bases, Mulcahy Park, Delaney Park, Bicentennial Park, adjacent University of Alaska Anchorage and Alaska Pacific University campuses, and notable water bodies and creeks (Lake Hood, Lake Spenard, Campbell Creek, and Chester Creek). These assets are assets prized by MOA citizens, and need to be considered in future land use policies.

Transportation System Management. TSM strategies are designed to achieve the best possible operation and performance from the existing transportation system. Generally, they are roadway improvements that increase effective capacity, optimize traffic operation, and apply traffic calming in residential areas. TSM strategies tend to be low cost, require minimal right-of-way, and can be implemented quickly. Responsibility for TSM activities generally lies in government domains.

Travel Demand Management. TDM strategies are intended to influence travel behavior and demand, reducing the need for travel, increasing vehicle occupancy, creating more travel options, encouraging use of non-driver modes, and shifting the timing of trips to flatten peaks. These strategies seek to improve system performance by reducing and redistributing the demand for single-occupancy vehicle trips. Travel demand behavior response is highly dependent on employer support and employee commuting actions.

Implementation Progress. Table 7-12 itemizes new congestion management strategies that have been recommended for implementation. Because most of the proposed new management strategies are not active in 2005, no measurable impact on congestion has been observed. To successfully integrate planned strategies and components as part of the Anchorage Congestion Management Program, additional work is required.

Measuring Change in Congestion

Transportation system performance measurements for Anchorage were developed and applied in two studies, the first in 1998 and the second in 2003. The results of these studies and comparisons during the 5-year period help assess congestion severity and trends:

- In 2003, 32 percent of 72 arterial intersections were operating at an unsatisfactory level of service (LOS E or worse) during the afternoon peak period.
- Fifty-two percent of intersections studied in both 1998 and 2003 had worse level-of-service

Table 7-12. New Congestion Management Strategies Recommended, 1994

Voluntary trip reduction ordinance
Site design criteria to increase transit use
Ordinance to require bicycle facilities
Guaranteed ride home
Eliminate existing employee parking subsidies
Bus traffic signal preemption
Arterial concurrent-flow high-occupancy vehicle lanes
Reversible-lane systems
Preferential parking for high-occupancy vehicles
Education programs for bicyclists and potential cyclists
Bicycle media and promotion campaign
Land use policies to reduce single-occupancy vehicles
Parking requirements in zoning codes
Education programs
Employee transportation allowance
Joint development activities
High-occupancy vehicle applicability
Arterials with limited access
Parking supply control
Trails coordinator
Showers and clothing lockers for pedestrians and bicyclists

Source: MOA, *Congestion Management Program*, October 1994

conditions in 2003; 20 percent were the same; and 28 percent had improved between 1998 and 2003.

- Congestion on arterial and collector streets accounts for nearly all of the congestion in Anchorage. About 50 percent of all hours of travel in Anchorage are on these streets. Therefore, improving efficient operation of the arterial street system will be the largest factor in congestion relief.
- Transportation system delay is evident in longer travel time during peak commute hours compared to mid-day travel time. Major corridors studied in 2003 showed a peak-hour delay of between 5 and 40 percent.
- Comparison of 1998 and 2003 travel times revealed that travel on 45 percent of the routes took longer in 2003. The average increase in 2003 travel time was about 10 percent.
- The Texas Transportation Institute continuing studies of urban mobility show sharp increase in delay since 2000 in Anchorage (Figure 7-35).
- Transit riders in 2004 were up 23 percent compared to 2002. That figure translates to non-automobile mobility for nearly 2,500 additional daily riders.
- Vanpool formation has grown, and additional potential users (on the waiting list) could double the vanpool users if vans were available. Almost all vanpools operate in the Glenn Highway corridor, where reducing solo-driver vehicle miles is especially important.

Actions to Reduce Congestion

Other cities have achieved significant success in reducing congestion through TSM tools and initiatives focused on travel behavior change. The *2005 Urban Mobility Report* (2005) developed by the Texas Transportation Institute cites various strategies that reduce congestion. The examples listed below show programs and the percentage to which they reduce congestion or delay:

- Arterial signal coordination, 1.5 percent
- Incident management, 5 percent
- Public transportation service, 4 percent
- Ramp metering for freeways, 4 to 26 percent

Specific opportunities for improving congestion management strategies are best achieved by enabling and promoting traveler behavior change. Travel, like other behaviors, can be influenced and conserved. The essential ingredient to make change possible is access to viable options. The fundamental strategy in promoting traveler behavior change is creation of practical, pragmatic choices that are sufficiently attractive to induce a shift from personal vehicle use.

For most people, use of a personal vehicle is by far the easiest way to travel. The high cost of ownership, operation, insurance, and maintenance for the multiple vehicles common in many households is widely recognized, however. Drivers also are conscious of environmental and other effects created by vehicle operation.

Changing automobile reliance is a very large task because of the degree to which private vehicles are ingrained into American lifestyles. Encouraging peak-hour travelers to shift modes, time of travel, or to not make trips at all are three behavior changes that can help reduce congestion.

The enablers to facilitate traveler behavior change include the following:

- Providing traveler choices
  - **Accessible transit service.** Public transportation is a widely available alternative to automobile use. For transit to be a viable option, service must be available within reasonable walking distance of origins and destinations
  - **More frequent transit service.** Transit helps reduce peak-period traffic if it attracts riders. More frequent service (15-minute frequency) during peak periods on priority corridors is needed
  - **Ride-share programs.** Facilitating ride sharing results in fewer vehicles on the road. Most carpools are created informally by members, often from the same household.[1]

[1] Anchorage commuters who share rides (carpool) typically do so without any encouragement. Approximately $620,000 is expended annually for ride-share programs that result in about 800 carpool participants. The persons participating in rideshare carpools and vanpools represent about 0.8 percent of the 140,000 employed workers in the MOA. The 2000 U.S. census reported 23,000 persons travel to work in carpools and vanpools; obviously many workers create their own ride-sharing arrangements independent of the publicly funded ride-sharing program.

– **More vanpool.** Vanpools are especially effective for two reasons: (1) one vehicle carries more travelers than carpools, and (2) they reduce more vehicle miles because of typically longer trip distance. Nearly all existing vanpools operate along the Glenn Highway, helping to reduce congestion in that busy corridor.

– **Guaranteed Ride Home Program**. This program offers backup to ensure that in emergency situations ride-share participants can get home, increasing ride sharing viability. Employer partnering is needed to implement this strategy.

– **Employer participation.** Active support of employers is critical to realize measurable success in shifting employee commute habits. Employer implementation of telecommuting, flexible work schedules, priority carpool and vanpool parking, bus passes, and other initiatives helps relieve congestion. Government efforts at ride-share and related programs are significantly ineffective in the absence of broad, continuing employer participation.

– **Telecommuting and other work schedule options.** Communications technology makes it possible for many people to work from home, at least some of the time. Currently in Anchorage, about 15,000 daily work trips are eliminated by telecommuting. This number is about the same number of weekday trips carried by the People Mover bus system. The scale attests to the powerful benefit of promoting telecommuting programs with employers.

- Financial incentives

  – **Tax (monetary) benefits.** Under the federal commuter tax benefit, bus passes are tax-free. Employers could support this program with companion programs.

  – **Cash incentives.** Consumers respond to price stimuli and incentives. Most consumer behavior decisions have a cost-value dimension. Price-related and cash incentive programs can encourage desired behavior. For example, the State of Washington is implementing innovative value-pricing experiments and programs to expand traveler behavior responses. Analysis of potential cash incentives applied to reduce solo commutes on the Glenn Highway suggests that as little as $8 million may achieve traffic reduction sufficient to avoid the necessity of a large road expansion investment. Funding to implement carefully crafted pilot programs could be highly effective.

  – **Parking management.** Most employers in Anchorage provide free parking for their employees, but very few provide free bus passes, resulting in a built-in bias toward automobile commuting. Parking pricing affects employee commute choice.

- School transportation

  – **School access and safety.** Schools attract an inordinate amount of vehicle traffic. Some students are driven to and from school, generating a round trip in the morning and another in the afternoon, totaling four trips. The automobile trips to schools occur even at schools whose students live within walking distance. At high schools, restrictions on student parking (to encourage alternative modes and carpooling) could relieve traffic.

  – **Walking School Bus Program.** A program of chaperoned walks to schools (known as a "Walking School Bus") can substitute for student chauffeuring. It would also promote health benefits by fostering exercise for students. As many as 15,000 daily automobile trips could be eliminated from around schools by aggressive implementation of walking to school initiatives.

- Market research and performance assessments

  – **Market research and analysis.** Affecting behavior change is a marketing activity. There clearly is risk in undertaking such programs. Research helps assess the risk and merits of potential programs and targets efforts for maximum effectiveness. Research is critical to gauge market segments: those pre-disposed to the concepts, those open to considering the proposition, and those decidedly uninterested. That knowledge should guide design of programs and investments.

– **Performance evaluation.** When a travel behavior change initiative is launched, it should be viewed as an experiment. Evaluation of the performance, costs, and effectiveness of each program should be part of the process. Evaluation feedback should inform decision makers and focus energies.

Transportation System Operations (TSM Strategies)

Signalized intersections are clearly the key determinants of congestion in the MOA. Numerous intersections cause bottlenecks and significant delays. Many of these problem intersections are concentrated in the central part of the Anchorage Bowl. There are relatively few congested intersections in the southwest and southeast areas of the Anchorage Bowl or in Chugiak-Eagle River.

Some intersections are congested not only during the morning and afternoon peak periods but are also during mid-day (shown in Figure 5-6). The most congested intersections are as follows:

- Boniface Parkway and Northern Lights Boulevard
- Bragaw Street and DeBarr Road
- C Street and Tudor Road
- Lake Otis Parkway and 36th Avenue
- Lake Otis Parkway and Northern Lights Boulevard
- Lake Otis Parkway and Tudor Road
- Seward Highway and 36th Avenue
- Old Seward Highway and Dimond Boulevard

Generally, the afternoon peak period is more congested than the morning peak period. Although intersection bottlenecks cause most delays on the road system, congestion is also evident because of inadequate capacity along some major roadway corridors. Corridor travel time studies and analyses of roadway segment service levels reveal the locations and extent of roadway delay.

Transportation operations management strategies should focus on improving these congested intersections (through signal timing or physical improvements). Other strategies may focus on systemwide issues or address local issues through individual projects. Potential strategies are discussed below.

Traffic Signal Timing

Traffic signal timing and coordination along corridors is arguably the single most important factor in management of arterial streets. Optimizing timing to traffic conditions is a continuous task and requires adequate staffing to monitor, analyze, and re-time signals. Strategies for improving signal system operations include the following:

- Periodic review and re-optimizing
- Intersection signal timing to reduce delay and coordinate timing plans for subareas or along corridors
- Time-of-day optimization, including vehicle-actuated signals
- Automated and real-time data collection
- Operation of a traffic management center to facilitate monitoring and rapid response
- Emergency vehicle and transit signal preemption
- Intersection geometry changes to eliminate split-phase signal operation (for example, by installing dedicated left-turn lanes)
- Field observation and maintenance

Most signals in Anchorage operate on long cycle lengths, with significant delays waiting for the green signal occurring even when traffic is light. A more than 30 percent reduction in delay is possible during periods of low demand (traffic at 50 percent of the afternoon peak-period volumes). With 3.6 million vehicle movements per day through the 74 busiest intersections in the Anchorage Bowl, a delay savings of 4.1 seconds per vehicle per

intersection would result in a daily savings of 4,800 vehicle-hours—about 1 million driver hours per year. This time difference is emphatic evidence of the importance of good signal timing.

Signal System Upgrade

Good signal timing and system management produce significant benefits. Critical elements of the signal system include intersection signal controller technology, communications infrastructure, operations management and analysis software, and centralized control.

Modern advanced signal controllers have advanced state-of-the-art computer components—logic and control, sensors and detectors, automated data acquisition and communications, wireless and hard-wired communications, and modular software components. These advances provide greater flexibility in traffic management. They enable greater efficiency through administration by a centralized traffic management center, increase staff productivity, and permit faster response in adapting to traffic conditions and changes. These technology and system advances can be leveraged by the MOA to improve the street system management.

An additional benefit of central traffic management is the opportunity to provide real-time traveler information about the status of the street system. Information automatically gathered from intersection signal controllers and detectors at other locations can be fed to broadcast media to inform travelers about incidents and traffic conditions.

Spot Geometric Improvements

Focused geometric improvement (at intersections or on freeways) can remedy bottleneck situations. An added auxiliary lane between ramps on a freeway in many cases can eliminate or delay the need for expensive widening. An additional turn bay at one approach to an intersection may reduce delay for all movements, in all directions, at that intersection. Although there is no specific strategy that can be implemented throughout Anchorage, focused studies at key bottlenecks can reveal cost-efficient strategies.

Traffic Calming

Cut-through traffic on neighborhood streets is a safety and quality-of-life concern for neighborhoods. Cut-through traffic is often a symptom of a congested system; drivers are avoiding congested major thoroughfares. Implementation of neighborhood traffic calming can eliminate the negative impacts of the congestion problem.

The *Traffic Calming Protocol Manual* (MOA Traffic Department, 2002) provides a toolbox of strategies available for traffic-calming applications. These strategies require engineering judgment, but there is ample experience on the effectiveness and cost of various solutions. Traffic calming is intended for neighborhoods, in contrast to the location-specific spot improvements on higher volume arterial streets.

Photo courtesy of CH2M HILL

Highway Railroad Crossings

Roads cross railroad tracks at grade in 17 Anchorage locations. Electronic warning and preemption systems for highway-rail intersections can be deployed to enhance safety and help prevent vehicle-train crashes or incidents at locations where grade separation projects are not feasible. These warning systems are identified in plans for deploying Intelligent Transportation System elements in the MOA.

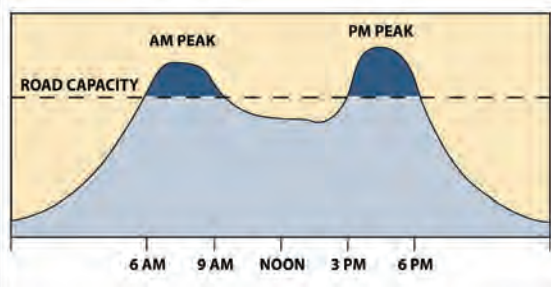
The Alaska Railroad crossings in Anchorage have an excellent safety record and collectively rank well above national averages for rail crossings. The at-grade road crossings of the Alaska Railroad affect the transportation system with differing levels of delay.

Conclusions and Approaches for Congestion Management

Managing the transportation system efficiently and pursuing programs to reduce or shift travel demand complement traditional expansion of transportation capacity through road projects and increases in transit service. These management efforts will become increasingly important to address congestion in coming years.

The primary issue is coping with weekday surges that occur during only a few commute hours. Figure 7-36 shows the fluctuation of trips throughout the day. By fixing capacity "pinch points" and reducing some demand or shifting it to other hours, the most severe problems can be relieved. Management initiatives focused on specific congestion problems will be most effective. These include traffic signal timing, spot improvements at pinch points of congestion in the transportation network, more bus service and vanpool availability, and employer partnering emphasis to change commuter habits. In addition, pricing mechanisms are an important tool to bring change.

Figure 7-36. Peak-Period Traffic Strains Road Capacities



Travel during peak hours is the biggest problem. If traffic during the peak-hour commute periods is managed more efficiently, congestion can be reduced.

Source: CH2M HILL

A much greater challenge lies in creating viable choices and options and addressing pervasive single-occupant vehicle travel. These issues are far larger, broader, and more difficult than congestion management. The character of Anchorage in the future city will hinge on confronting this challenge.

Overview and Assessment of Recommended LRTP Road System

Implementation and construction of the transportation programs and projects in the recommended LRTP will achieve significant success in meeting future transportation needs. (See Figure 7-18.) The following are examples of successes anticipated in 2025 from the LRTP recommended road plan when compared with outcomes of the 2003 LRTP:

- Doubling of the number of transit riders if the transit budget is increased to enable provision of 210,300 annual bus revenue service hours
- Overall savings of about 4.5 million vehicle hours of travel
- Elimination of nearly 85 percent of the congested vehicle hours of daily travel per year
- Reduction of freight travel time and corresponding costs by 15 to 20 percent
- Addition of 160 miles of pedestrian and bicycle facilities in conjunction with road projects, significantly enhancing trail connectivity and continuity
- Inclusion of transportation strategies and programs for system management and operation, safety improvements, and travel options that complement recommended transit and road improvements
- Improvement in air quality, economic vitality, and traveler options, as well as reduction in neighborhood traffic intrusion

CHAPTER 8. Plan Recommendations

Introduction

Informed decisions about transportation issues and about where and when to allocate investments rely on two key knowledge areas (1) understanding the shape, character, and extent of future land development in the MOA and surrounding region; and (2) the results of analyzing a range of possible future transportation plan options with the Anchorage travel model.

Recognizing the broad range of transportation modes used and the dispersed travel patterns, LRTP investments need to be focused on these priorities:

- Better managing the transportation system
- Deploying new technologies for traffic signal control
- Increasing road capacity
- Expanding transit service and infrastructure
- Providing improved and expanded pedestrian and bicycle facilities
- Facilitating efficient freight handling and movement
- Improving traveler choices and options
- Better integrating transportation facilities and services with community planning and design

Analyses identified the following transportation-related findings about current and future conditions:

- Travel from Chugiak-Eagle River and the Mat-Su Borough is rapidly increasing.
- Travel patterns are broadly dispersed, with at least six major activity centers in Anchorage that attract large numbers of trips. Contrary to common belief, the downtown Central Business District is not the destination of most trips within the Anchorage Bowl.
- Significant improvements to the road system will be required to meet future travel needs. The performance of the existing road network is significantly hindered because of missing route segments, bottlenecks, and limited major north-south and east-west through connections.

The 20-year LRTP will guide $3 billion in transportation investments for Anchorage.

- Improving transit is important to mobility. Transit provides options for all users of the transportation system, relieves congestion along freeways and arterials, and reinforces Anchorage 2020 comprehensive plan goals and objectives. Widely dispersed activity centers and travel patterns and the relatively low residential densities present challenges for providing effective transit. Reducing door-to-door travel times by transit is key to attracting new riders.
- Expanding and maintaining the sidewalk and multi-use trail network are important to the community. These improvements encourage walking and provide better transit access. The community highly values open space and the existing Anchorage trail system. Filling in gaps will create better continuity, improve safety for pedestrians and bicyclists, and create a more integrated multimodal system.
- Attaining Anchorage 2020 visions and goals will involve more effective system management, availability of and access to alternative travel options, freight network improvements, traveler behavior shifts, and reduced automobile dependence

A Call to Action–Managing Systems More Effectively

The cumulative investment in the existing transportation system is very large. The first priority is to obtain the best possible performance from the existing system. Continuous refinements must include the following:

- Paying attention to traffic signal timing
- Running transit as efficiently as possible
- Implementing a corridor management plan for Tudor Road
- Using technology to help manage and operate the transportation systems
- Responding quickly to resolve "pinch points" or bottlenecks in the road network that hinder traffic and transit flow

Traffic Signal Timing

Managing traffic signals is arguably the most important traffic engineering function within a city. Few activities have an equivalent impact on the public. Optimizing traffic signal timing and coordination has the potential to significantly reduce driver delay and congestion. Simple things—like adjusting the length of the red-green-yellow cycle for different daytime hours, weekdays versus weekends, and seasonally—can reduce traveler delay by upwards of a million traveler hours annually.

Complete signal timing reviews and updates need to be scheduled at least every 4 years.

More than 250 intersections have traffic signals in Anchorage. Getting the timing right is critical for minimizing delay, improving safety, and protecting pedestrians. The MOA is currently undertaking a systemwide signal timing update, the first in 10 years. Complete signal timing reviews and updates need to be done at least every 4 years.

Transit System Operation

The MOA now budgets more than $15 million per year to operate People Mover, AnchorRIDES, and Share-A-Ride programs. The cost is partially offset by operation revenues from passenger fares and advertising. People Mover is implementing its route restructuring plan (documented in *The People Mover Blueprint: A Plan to Restructure the Anchorage Transit System*, 2002, by RLS and Associates, Inc., 2002; discussed in Chapter 7) to realign routes, coordinate bus schedules, increase service frequencies, and improve service availability and accessibility. These combined efforts represent the first significant service improvements in a decade.

Interim results show significant progress. In 2004, People Mover ridership was the fifth highest in MOA history. Patronage in the first quarter of 2005 was 23 percent higher than in 2002, before restructuring began. The number of riders per bus-hour of transit service is also on the rise, indicating that service productivity is increasing. But the restructuring plan is only partially complete; more improvements remain to be implemented.

Complete the Route Restructuring Plan Implementation

The restructuring plan calls for 30-minute service frequency all day on all routes. These frequency improvements need to be completed; they increase riders and improve productivity.

In parallel with the frequency improvements, continuous focus on service delivery quality, on-time schedule performance, refinements in stop locations to optimize passenger access and bus travel times, and attention to details will help boost ridership. These efforts include listening to customers, monitoring performance, fine-tuning bus operations, and providing clean and safe vehicles, courteous drivers, and easy public access to route and schedule information.

New Buses

Additional buses will be required to provide 30-minute service frequency on all routes. The bus fleet will need to be expanded by 12 vehicles.

Also, about 40 percent of the existing People Mover fleet is due for replacement by 2007-2008. The fleet updating expenditure of $9 million will be supported by 80 percent federal capital grant funding, but the MOA will need to provide $1.8 million in matching funds. New buses and marketing promotions will further reinforce gains in riders.

Transit Funding

Funding is the critical issue for People Mover within the next 2 to 3 years. Maintaining the momentum—increased riders and productivity—of the People Mover route restructuring plan is crucial. Momentum cannot be sustained in the absence of committed and stable public funding support. Funding priorities are to complete the restructuring improvements, continue service operation at that level, and secure funding for new buses.

Tudor Road Corridor Management

Tudor Road from Minnesota Drive to Muldoon Road is often congested with heavy traffic. Future traffic projections show the congestion will increase. Several intersection and other improvement projects are currently under way or planned along Tudor Road. The next step is a corridor-wide traffic management program that builds on current improvement efforts and provides a cohesive system management approach for the entire route. The plan will apply advanced traffic management tools and techniques to improve traffic operations, safety, and flow on the corridor.

The following activities should be included in the Tudor Road Corridor Management Plan:

- Update traffic signal timing and coordination along the corridor
- Upgrade signal controller hardware and software with modern technology, including automated data collection, communications, and surveillance
- Reconfigure intersection lane layouts to eliminate split-phase signal arrangements wherever possible
- Implement access management to consolidate existing access points where possible, limit future driveway access, and apply traffic-calming initiatives
- Implement a positive barrier or raised median along the length of the corridor to control turning locations and U-turns
- Develop alternative circulation and rear-access arrangements for abutting properties north and south of Tudor Road
- Remove or limit access to Tudor Road from some side streets and connect other side streets to one another
- Locate bus stops or turnout bays on the far sides of intersections (past the traffic signals) wherever possible
- Install pedestrian signals with count-down crossing displays at critical locations and provide pedestrian refuge space in the median area as appropriate

Identify staffing and resources required for technical support, monitoring, maintenance, enforcement, and incident management for the complete corridor

Signal System Technology Upgrade

The importance of an efficient arterial street network operation is evident from that fact that about two-thirds of congested hours of travel in Anchorage occur on arterial and collector streets. Traffic signals are the principal instrument for managing street traffic.

Advanced technologies and systems for traffic signal control can enable Anchorage traffic engineers to more efficiently and more effectively manage the traffic signal system. The MOA needs to upgrade its traffic signal hardware, software, and management systems by leveraging Intelligent Transportation System (ITS) technologies. Core upgrade features include state-of-the-art signal controllers, management software for modern modular signal systems, automated data collection and camera surveillance, and real-time communication between field sites and a central traffic management center. Signal preemption for emergency vehicles and transit buses needs to be part of the upgrade package.

The benefits of this technology upgrade investment will include significant staffing productivity gains and reduction in travel delay. These benefits are realized through automated data acquisition for timely decisions, real-time capability to monitor traffic operations, quickly adapting signal-control strategies to traffic conditions, and adjusting timing patterns by time of day, daily cycles, seasonal changes, emergencies, and special events.

Fixing Pinch Points

Transportation network performance is often hindered by critical bottlenecks that constrict travel flow and create network bottlenecks. Transitions from freeways to arterials and highly congested intersections are good examples of pinch points. A continuing Pinch Point Fixes program is recommended to resolve trouble spots as quickly as possible. Suggested strategies to fix, or at least mitigate, these pinch points are spot improvements employing a variety of traffic engineering and congestion management tools. The existing MOA right-turn program will be expanded, and reviews of intersections and pedestrian safety will continue. Remedying problem sites can make noticeable improvements in network performance.

LRTP Elements and Projects

Brief overviews for each transportation element in the LRTP are presented in the following pages.

Roads

The roadway network is the backbone of the MOA transportation system. Projected 2025 population and development are used in the travel model to identify future road traffic volumes indicating when and where road improvements will be needed. The recommended road projects are necessary to provide system connectivity and accommodate expected future traffic demand.

The majority of new road and road improvement projects occur on the freeway and arterial network, including both state highways and significant municipal streets. New and improved collector roads that provide network connectivity and capacity are included in the recommended projects. If collectors need upgrades to meet current standards, but do not add new capacity, safety, or connectivity, they are not included in the recommended LRTP project list. These road upgrades to meet standards likely will be included as MOA bond-funded improvements. (Projects to reconstruct roadways to meet urban standards, typically without adding lanes or capacity will need to be implemented during the next 20 years.)

Projects already funded and still under development are also included. Most, but not all, of the projects have been included in prior plans; the detailed analyses for the LRTP has ratified their merit. Some projects proposed in previous planning documents have been eliminated as a result of this current and more exhaustive analysis, and others have been made unnecessary by inclusion of new projects.

Road projects are summarized in Figure 8-1 by geographic areas within the Anchorage Bowl. Some projects are for infrastructure preservation and rehabilitation; others add pedestrian, bicycle, and related enhancements (as components of projects that are building or rebuilding adjacent roads); and some add capacity to critical segments. Table 8-1 (at the end of this chapter) provides a detailed list of recommended road projects.

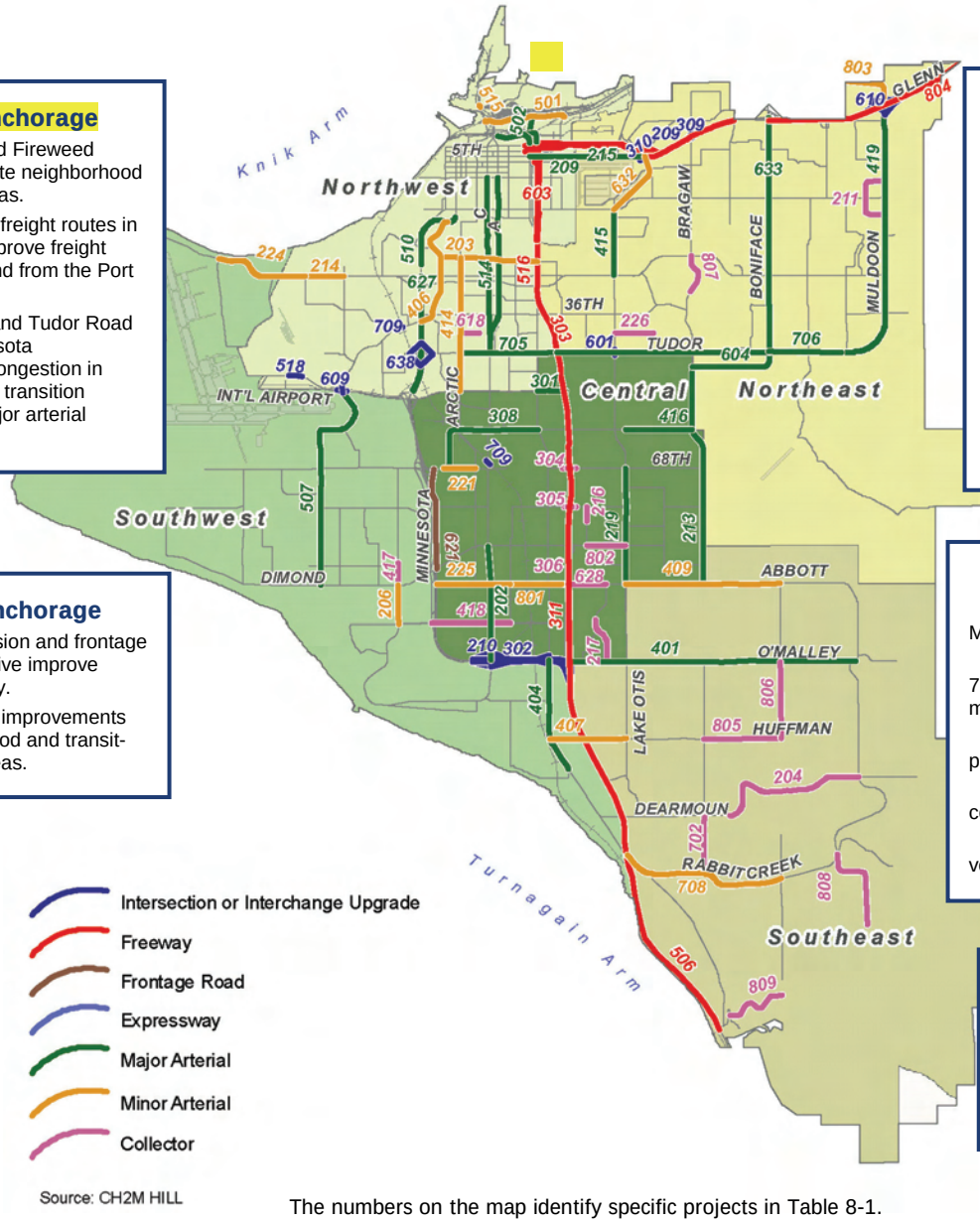
Road Improvement Highlights

The recommended road improvements program accomplishes the following:

- Completes missing segments to reduce the need to expand other streets
- Interconnects the upgraded Seward Highway with Minnesota Drive and adds three new east-west street connections across the Seward Highway to provide better circulation
- Connects the Glenn and Seward highways to provide needed capacity and more efficient freight distribution
- Adds improvements to the Seward Highway south of Rabbit Creek to the AMATS boundary to address safety issues and provide bicycle facilities
- Improves surface streets over and around the Glenn and Seward highway corridors to calm traffic and create opportunities for modes of travel other than the automobile
- Expands access to Ted Stevens Anchorage International Airport (TSAIA) with Minnesota Drive and International Airport Road projects
- Eases the Glenn Highway corridor commute

Two especially important projects are the Glenn-Seward highways connection and the Glenn Highway corridor project to the north.

Figure 8-1. Recommended Road Projects



Northwest Anchorage

- Spenard Road and Fireweed Lane projects help create neighborhood friendly commercial areas.
- Enhancements to freight routes in the Ship Creek area improve freight movement access to and from the Port of Anchorage.
- Minnesota Drive and Tudor Road interchange and Minnesota improvements lessen congestion in these key corridors and transition freeway roadway to major arterial roadways.

Northeast Anchorage

- The Glenn-Seward highway connection effectively carries traffic from the Glenn Highway to Downtown, Midtown, and University-Medical District area, removing traffic from local streets.
- Lake Otis Parkway improvements and connection to the Glenn Highway relieve congestion, improve pedestrian and transit movement, and safely connect pedestrians to parks, trails, and retail areas.
- Tudor Road Congestion Management Plan reduces traffic friction and provides safer pedestrian movement and better transit operations.
- Muldoon Road landscaping and pedestrian improvements enhance travel alternatives and transit use, as well as opportunities for beautification.

Southwest Anchorage

- Northwood extension and frontage roads on Minnesota Drive improve north-south connectivity.
- Jewel Lake Road improvements help create neighborhood and transit-friendly commercial areas.

Central Anchorage

- Dowling Road extension from Abbott Loop Road to Minnesota Drive improves east-west travel options.
- Connectivity under the Seward Highway at 92nd, 76th, and 68th avenues offers more route choices to midtown and downtown destinations.
- C Street extension offers connectivity for cars, transit, pedestrians, and bicyclists.
- Extensions of 92nd and 100th avenues improve connectivity and freight movement.
- Seward Highway improvements handle high traffic volume in the corridor.

Southeast Anchorage

- Elmore Road extension improves connectivity to several schools and assists emergency response and fire safety on the Hillside.
- Predominant east-west arterials are upgraded to meet demand, and missing links are added.

The numbers on the map identify specific projects in Table 8-1.

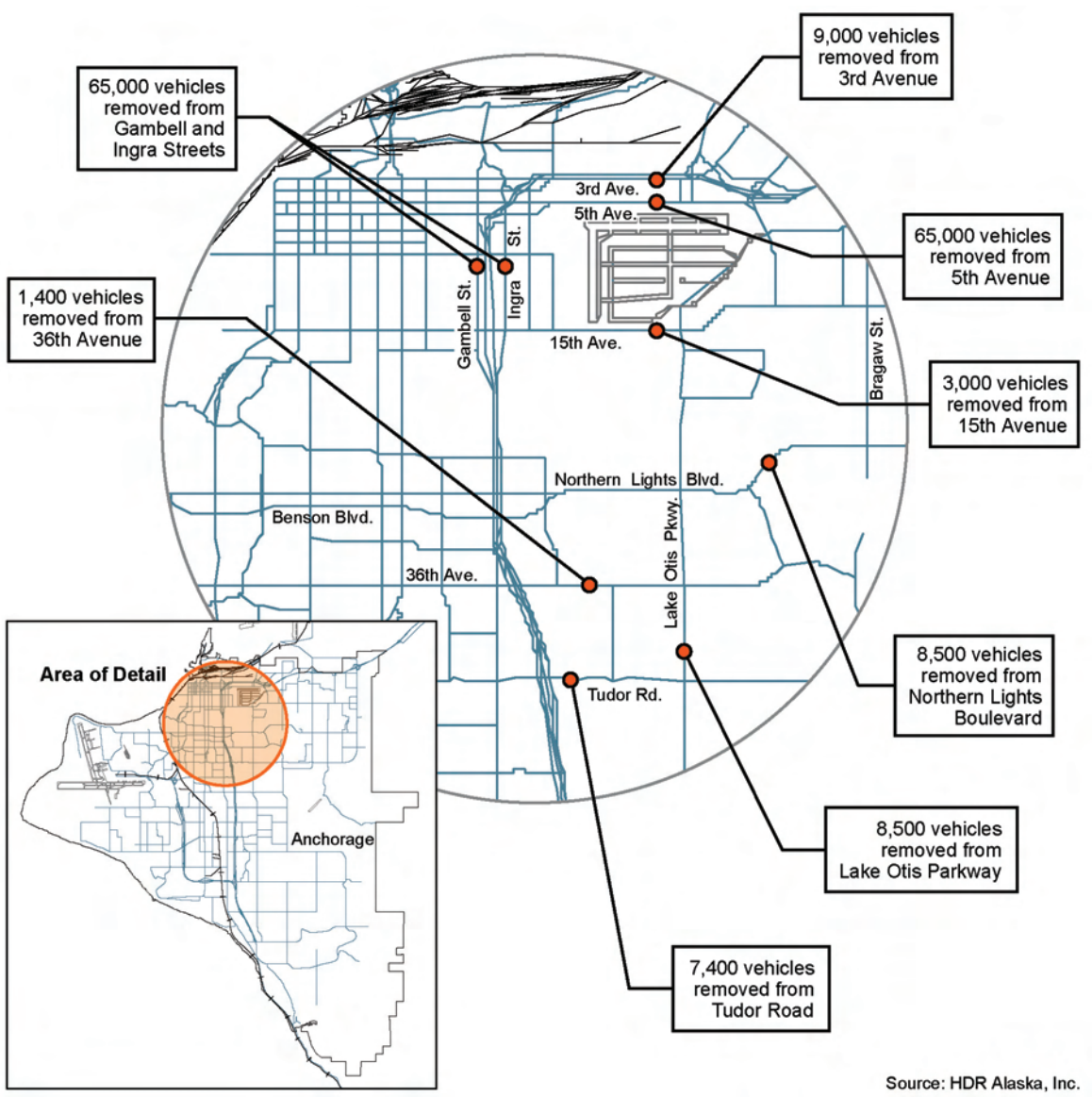
The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Building the Glenn–Seward Highway Connection

The Glenn and Seward highways together form Anchorage's longest and most multifaceted transportation corridor. Both highways are part of the National Highway System, the regional transportation network, the city street system, and the city and neighborhood landscape. Both highways provide critical links in support of state, regional, and local economies.

The MOA and Mat-Su Borough regional population will approach one-half million people by 2025. That's 140,000 more people than live in these areas today—85,500 more people for Anchorage alone—and 400,000 more trips every day on our transportation system. The traffic at the junction of the Glenn and Seward highways is anticipated to exceed 100,000 vehicles per day, increasing faster than on other roads because of suburban growth and drivers' preference for higher-speed freeway travel. Finishing this highway connection is a top-priority to contain Anchorage congestion. See Figure 8-2.

Figure 8-2. Vehicles Removed Through Improved Connections



The red dots indicate the locations where vehicles were counted.

The Concept. The connection concept uses topography to trench, burrow, and depress a new, high-capacity expressway on a unique alignment designed to serve through trips—travel to major destinations within and across the MOA—and reduce traffic on the neighborhood streets while incorporating improved parks and trail connections to benefit neighborhoods. (See Figure 8-3.) Innovative community enhancements, well-landscaped roadways, and a series of ground-level connections would span the depressed highway connection and re-establish neighborhood connectivity. By depressing the highway through sensitive areas, new and real opportunities are created for adjacent neighborhoods and surface streets to return primarily to serving local neighborhood traffic. Gambell and Ingra streets, 5th and 6th avenues, Mountain View Drive, and 15th Avenue/DeBarr Road would all serve local and business access. The list of associated benefits is long:

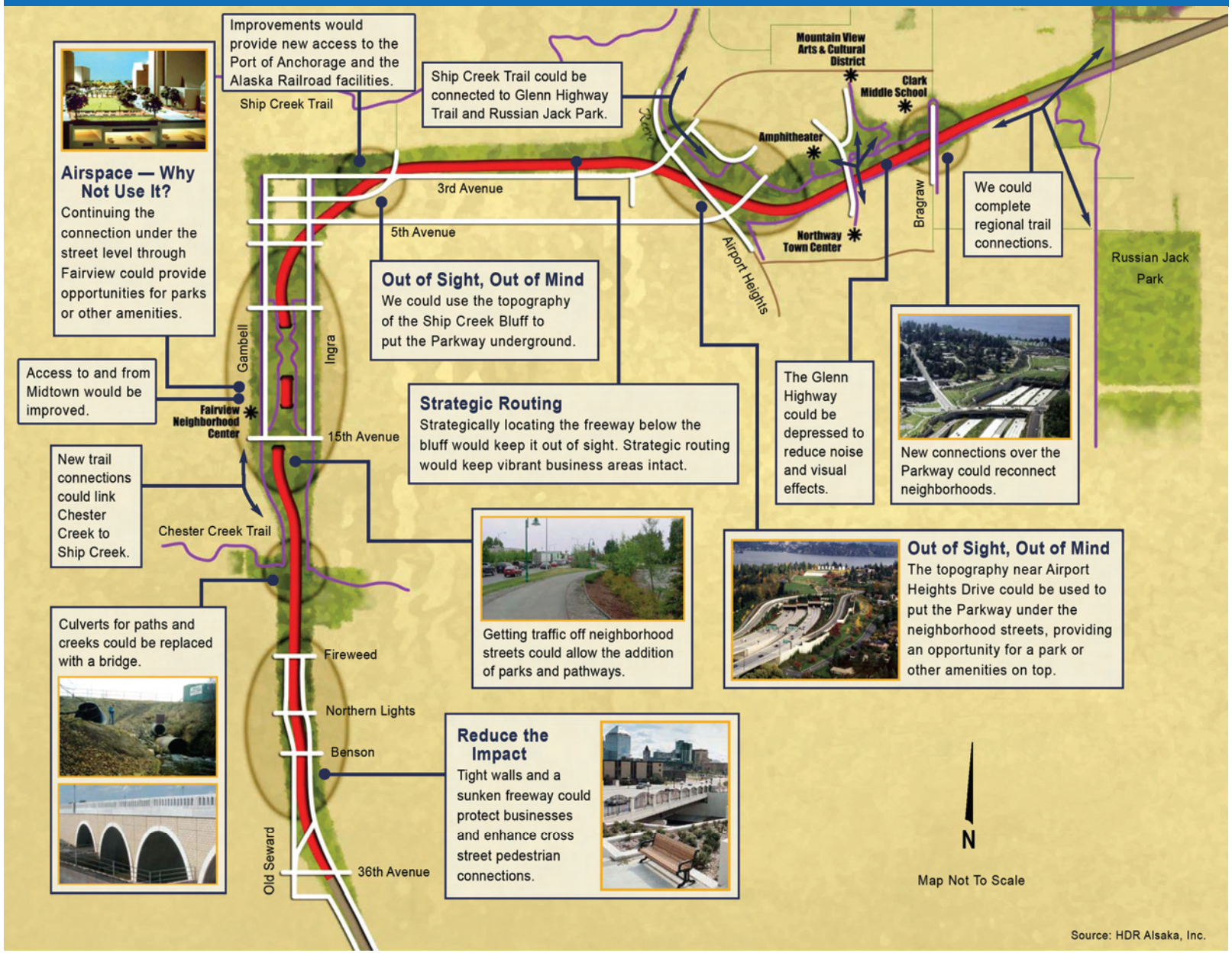
- Fewer new lanes are needed in the corridor because higher-speed, non-stop express lanes can accommodate more than twice the number of vehicles than lanes that also have to provide access to the abutting properties.
- Less time is spent in traffic—a wide range of users from commuters, to freight haulers, to emergency response personnel would realize this benefit.
- Traffic is no longer the major feature and concern of neighborhoods and communities. The highway's visibility and neighborhood impacts will be severely reduced.
- Traffic on local streets and in neighborhoods is reduced because cut-through traffic is eliminated and longer trips will bypass neighborhoods.
- The safety and ease of crossing the corridor (for cars and pedestrians) is significantly enhanced.
- Freight mobility improves with decreased congestion and improved travel times, which subsequently reduces the cost of doing business in and around the region.
- Freight haulers can move between the Port of Anchorage and distribution centers without traveling through Downtown or on surface streets in neighborhoods.
- Previous surface arterials can be reclaimed to serve local and business needs. Existing multiple-lane corridors can be used as frontage roads, or some can be reclaimed for on-street parking, beautification projects, or pedestrian facilities.
- Transit improves through shortened travel times, made possible by new opportunities to implement high-speed express bus, high-occupancy vehicle (HOV) lanes, or both. Longer distance commutes, typical of the corridor, are well served by good connections to various Anchorage activity centers and other attractions.
- Capacity is leveraged and safety is improved because of controlled access.
- Rebuilding of neighborhoods, housing, and public facilities is made possible.
- Neighborhoods and parks are reconnected with each other and Downtown.
- Communities are revitalized with transportation assistance.

Linking the highways is crucial to meet Anchorage transportation needs. But far more important is how the link is done. Context-sensitive design will be used to put the facility partly, or in some cases entirely, underground, getting the connection out of sight and off surface streets.

The Anchorage 2020 comprehensive plan and the 2005 draft Anchorage Bowl Land Use Plan Map depict portions of the eastern Downtown and western Fairview areas as providing much of the critical mass of housing units needed near Downtown. A well-designed, expedited project is essential to medium-term implementation of Anchorage 2020 policies for infill, redevelopment, and an enhanced urban environment. Timely completion of this project is essential to spur other investments to regenerate eastern Downtown and western Fairview. The following characteristics of the project are essential to provide consistency with Anchorage 2020 and to emphasize the importance of the land use aspects:

- The project design should enhance east-west neighborhood street connectivity. The most important east-west street connections in Fairview are 9th, 13th, and 15th avenues. These streets are most central, but additional connections should be considered.

Figure 8-3. Benefits of the Connecting Corridor



- Extensive decking over the freeway, particularly in the areas between 9th and 15th avenues, is important from a land-use perspective. The resulting open spaces would provide a neighborhood focus and integrate with abutting residential projects and the neighborhood commercial activity center.
- Land-use benefits will be realized if the freeway alignment allows (1) Gambell and Ingra streets to be a two-sided, north-south street (with housing on both sides) and (2) enough space for a block width of high-density residential and limited mixed-use between Gambell and Hyder streets. An alignment of the freeway centerline east of the Hyder Street centerline would maximize neighborhood space for redevelopment and infill in the area west of the freeway (and closer to Downtown).

Easing the Glenn Highway Corridor Commute

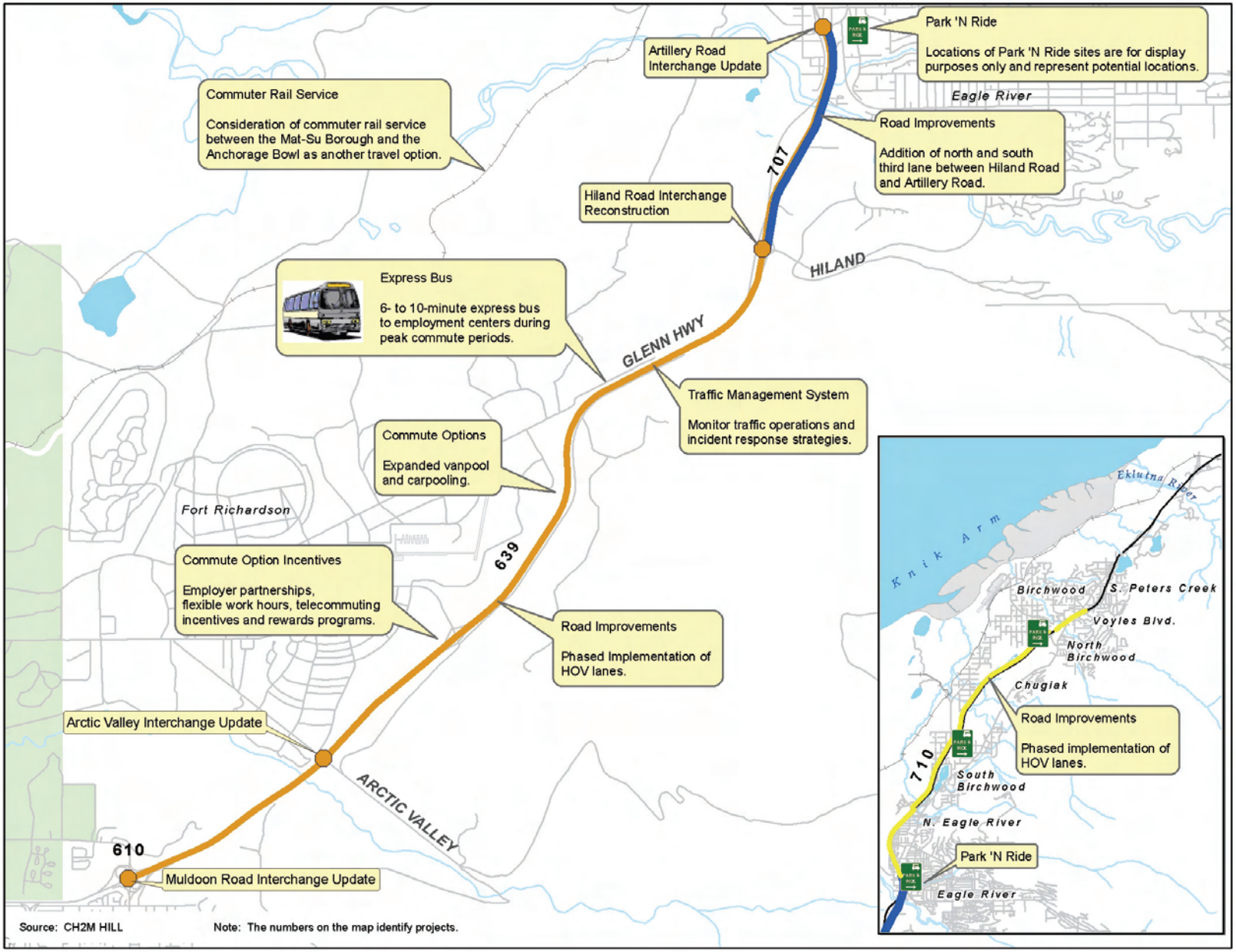
Travel in the Glenn Highway corridor between Chugiak-Eagle River and the Anchorage Bowl is projected to double over the next 20 years, as suburban development flourishes. The demand will exceed the capacity of the existing six-lane freeway by 1,600 vehicles in the peak hour.

A multi-pronged strategy to meet mobility needs in the corridor is recommended. It includes improving interchanges, ramp, and roadway bottlenecks along the corridor; implementing high-performance, express, commuter transit service together with aggressive incentives to shift commuters from single-occupancy vehicles (SOVs); phased provision of dedicated lanes for express buses and HOVs; and assessing the potential of commuter rail.

Figure 8-4 illustrates components. of the Glenn Highway corridor plan. The components are also described below:

- **Express bus service**, a new high-frequency commuter transit service from Chugiak-Eagle River and the Mat-Su Borough direct to Downtown, Midtown, and University-Medical District employment centers. New-design commute buses run at 6- to 10-minute frequency during commute periods. Park-and-ride lots and weather-protected shelters are provided at outlying locations. A Third Street bus-only lane enables faster bus travel in the downtown area.
- **Commute options incentive program**, consisting of value rewards, commute shift incentives, and strong employer partnerships to foster flex work hours, telecommuting, and other employee incentives to lessen solo-driver commutes
- **Expanded vanpool and carpool programs** working in collaboration with major employers to provide viable options to drive-alone commuting
- Facilitation of broad **implementation of federal tax-benefit credits** for vanpool and transit commuters to reinforce non-drive commuting
- **Road improvements** that include a third highway lane in each direction between Hiland Road and Artillery Road, incorporating bridge widening, interchange and access improvements, ramp extensions, and related spot improvements to improve traffic capacity, flow, and safety
- **Traffic management system** that monitors corridor traffic operation conditions and includes incident-response strategies (cameras, response coordination, public information dissemination, and traffic advisories)
- **Commercial Vehicle Intelligent System Network** (CVISN) that includes automated safety information exchange, electronic credentialing, and electronic screening upgrades to roadside weigh and inspection facilities
- Reconsideration of the **Glenn Highway weigh station investments** for the long term because relocation appears to be necessary
- **Phased implementation of HOV lanes**, express bus lanes, or both to reduce solo driver automobile use and make commute alternatives more attractive
- Consideration of **commuter rail service** between the Mat-Su Borough and the Anchorage Bowl as another travel option

Figure 8-4. Easing the Glenn Highway Commute



Public Transportation

The Anchorage bus transit system has shown recent significant improvements in terms of ridership and efficiency. Transit is expected to play an increasing role in meeting transportation demand in the future as the city matures and the higher-density residential and employment goals of Anchorage 2020 are achieved.

Four core challenges for public transit guide scoping of the LRTP transit element:

- Funding determines what level of transit service is possible.
- Public policy and public perceptions of transit service value define the willingness to support public funding.
- Improved transit service operations and service delivery can increase riders.
- Attracting more riders and sustaining or improving service productivity are the key transit performance benchmarks.

The Critical Balancing Act

The critical balance for transit service has three determinants: (1) the quantity of service operated, which defines cost; (2) the number of riders carried, which is the reason for providing transit; and the (3) revenue sources available to support service, some from riders and ancillary sources, but primarily from public funds.

This balance is at the crux of policy about the minimum necessary transit service and how much more can be realistically provided. A core mission of public transit is to ensure that all segments of our community have available transportation and access to community opportunities. The People Mover route restructuring plan with 30-minute frequency throughout the day (weekdays) does that. A second mission is to help reduce congestion by offering viable transportation alternatives to as many travelers as possible. Transit services must be more frequent and travel time must be more competitive with private vehicle travel to attract travelers who can choose either private vehicles or transit.

Transit Riders Can be Doubled

Many future scenarios have been analyzed with the Anchorage travel model and projections of 2025 development. Transit patronage can likely be doubled from 2002 levels, perhaps tripled. But to get the higher number of riders, public funding will need to expand from about $8.6 million annually (2002) to $26.5 million (2025). More funding is required if even higher levels of transit service are desired. Within the constraints of available funding, there are opportunities to improve service, increase riders, and help alleviate traffic congestion.

What is the best transit service choice for Anchorage? The recommended LRTP transit element reflects a pragmatic view that focuses on two priorities. First, the success of the restructuring plan is leveraged to gain more riders while retaining well-established standards for transit operating productivity. Service frequency is increased on seven routes in corridors that have the highest ridership. Second, new high-frequency, high-performance, express bus service is introduced on the Glenn Highway. The service targets 5 to 7 percent of that corridor's peak-period commuters.

Success in executing these priorities to grow ridership can be the springboard for future service improvements.

Beyond Committed Route and Service Restructuring

When implementation of the restructuring plan is completed (currently scheduled for 2007), a gain of about 28 percent more annual riders aboard People Mover than in 2002 is anticipated. Public funding support of about $14 million per year will be needed to sustain the planned level of service. This amount represents an increase of about $5.5 million over current funding levels.

Continuing to boost transit ridership is the primary goal for the next steps. These characteristics are important:

- Service frequency. Travelers have an aversion to scheduling constraints, waiting, and especially unreliable service. Time is the dominant factor influencing travelers' choice of travel mode. In choosing a travel mode, people weigh time for "walking and waiting" as being two to three times more important than the time spent in a vehicle. Transit research and experience demonstrate that 15-minute frequency is a threshold for travelers who have freedom to choose between automobile and transit travel.
- Direct service to destination. A transfer from one bus to another to reach a destination has a highly negative effect on rider choice. Few riders

are willing to accept the inconvenience, added waiting delay and uncertainty, and longer journey time.

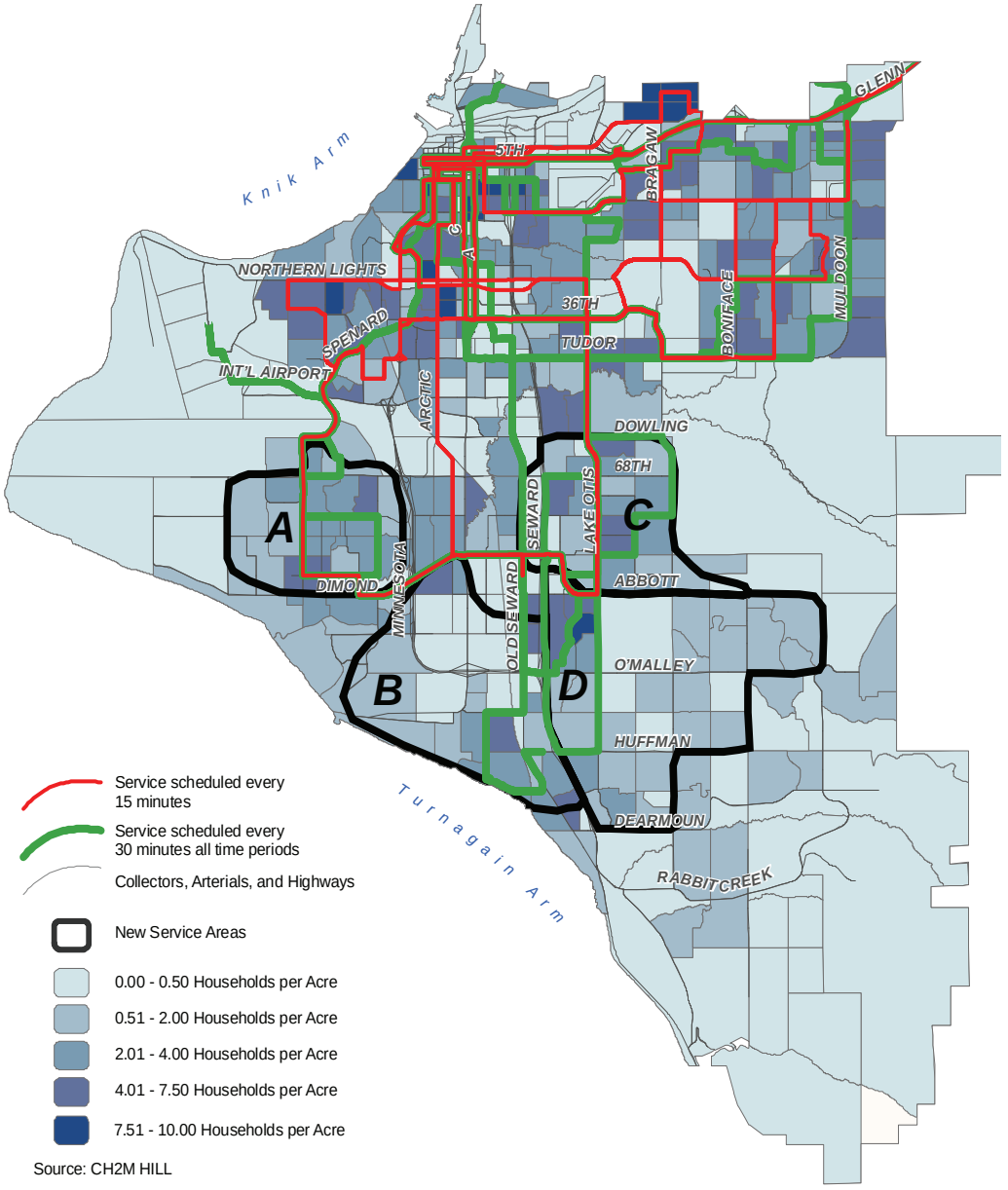
- Transit versus automobile travel time. Bus travel times in 2002 were about two and a half to three times longer than times for the same journeys made by automobile. That disparity needs to be significantly reduced to attract more riders. Longer spacing between bus stops and transit priority at signalized intersections can help improve transit speed.
- Accessibility. The maximum walking distance acceptable to people is typically one-quarter mile. Bus stops—both for the origination and the destination of travel—need to be reachable by sidewalks that are safe. The walking environment matters, too, especially during winter.

Dependability, comfort, value. On-time reliability (dependability), creature comforts, and cost value perceptions contribute to traveler assessments of service. These factors generally are subordinate to time and direct routing, but nonetheless come into play when assessing whether to use transit instead of a personal vehicle (with contoured bucket seats that may be heated, radio, CD player, and other amenities).

Priority Routes and Corridors

Improving transit service frequency to 15 minutes during peak weekday periods on selected routes. Figure 8-5 displays the recommended transit routes. Each route shown in red should have 15-minute peak service by 2013.

Figure 8-5. Recommended Transit Routes and New Service Areas



Source: CH2M HILL

In year 2011, replacement of 23 buses will be needed. A peak fleet of 77 People Mover buses will be required to operate the system with upgraded 15-minute frequency during peak periods on the seven priority corridors. People Mover at this stage will be operating 52 percent more service than in 2002. Annual riders are estimated to increase to 6.6 million passengers by 2025.

Fine-Tuning Route Operation and Improving Service Frequency

A detailed transit operations analysis should precede introduction of more frequent service on each transit route. Diligent planning and detailed examination and refinement of route operations can fine-tune service delivery and help boost the number of riders. More frequent service, more direct service, reduced travel time, better accessibility, on-time reliability— these are the performance objectives.

Bus travel time and delay statistics should be collected to identify locations and causes of delay (congestion, traffic signals, time at stops, and traffic flow variability). Major boarding and alighting points should be identified and bus stop locations assessed to obtain the best tradeoff between stops that are spaced farther apart that improve bus speeds and the optimum locations to minimize rider access and egress times. Census population demographic and socioeconomic profiles should be used to identify potential rider markets and locations. When available, traffic signal preemption for buses should be implemented to smooth bus flow. Opportunities to enable buses to bypass congestion should be investigated. Route alignments should be straightened wherever possible, and operating schedules should be tightened by using the new information and analyses. As capability becomes available, on-board technology for vehicle locations should be exploited to automate data acquisition.

Procedures for these fine-tuning analyses should be established and integrated in a mapping database (geographic information system). Periodic monitoring of route operations should be performed following service changes to continually refine service delivery.

Expanding People Mover Service

Consideration of further service improvements should be guided by growth of ridership and evaluation of route productivity. Service should be increased where there is good rider response on a case-by-case basis. Expanded services should be introduced on a trial period basis and continued if ridership gains are realized.

New Service Areas

A strategy for providing transit services in new areas is needed. The key principles are to base these decisions on the following:

- Community service requests and socioeconomic and trip-making analyses
- Introduction of service on a limited-time period trial basis

A new express-service vehicle with amenities for passenger comfort.

- Establishing specific service performance standards as the basis for continued operation

Flexibly routed "ride-by request" services (similar to the current People Mover DART services) are recommended for initial service offerings in new areas. Transition to fixed route service may be warranted when operating productivity standards can be achieved.

Figure 8-5 also shows potential service areas for ride-by-request services. Community requests for service and outreach by People Mover will likely dictate how actual services are deployed.

Express Bus Service in the Glenn Highway Corridor

High-performance, frequent commuter bus service in the Glenn Highway corridor is the cornerstone of the solution to ease commuter congestion in the corridor. Express buses running at 10-minute intervals or less during commuter peak periods from Chugiak-Eagle River, as well as from the Mat-Su Borough, will be needed to forestall serious congestion. Express service routes will go directly to Downtown, Midtown, and University-Medical District employment centers in the Anchorage Bowl. Aggressive efforts will be pursued to provide broad implementation of transit advantages. Federal tax-free benefits for commuter fares, employer-supported bus passes and other incentives, experimentation with cash incentives for non-solo driving, and phased provision of express bus and HOV-only lanes will reinforce the express bus program. A Third Street bus-only lane is included to enable faster bus travel in the downtown area.

Custom commuter coaches with reading lights, upholstered seating, and other amenities will be used for the express bus service. Park-and-ride locations will be needed in Chugiak-Eagle River. Similar regional transportation service for commuters will need to be provided from the Mat-Su Borough, the source of about 40 percent of commuters in the corridor. By 2025, a fleet of 30 vehicles will be needed.

Annual operating cost for the Chugiak-Eagle River express bus service is estimated at $0.65 million (in 2004 dollars); similar or somewhat lower costs would apply for equivalent Mat-Su Borough service. MOA and Mat-Su Borough officials will need to negotiate cost sharing, operating agreements, service coordination, and management and marketing arrangements.

Mobility for Youth and School Transportation

More than 141,000 student trips to and from schools will be made each weekday in 2025. Nearly 29,000 of these trips will be on school buses operated by the Anchorage School District. The School District's open enrollment program will make school bus scheduling more difficult. School buses together with People Mover will be important contributors to mobility for youth in the community. Those who are not yet of driving age also rely largely on safe walking and bicycle paths to get around.

Mobility for Seniors and Disabled Persons

Retirees and other residents in their senior years will compose an increasing share of Anchorage's population over time. Affordable and appropriate housing, supportive community features and services, and adequate mobility options facilitate their personal independence and engagement in civic and social life. Mobility services are essential to enable older and disabled persons in the community to stay connected and involved. Mobility support services need to be coordinated through the collaboration of many participants and providers from medical, social, faith-based, human services, and transportation service entities.

The MOA AnchorRIDES program provides demand-responsive, curb-to-curb service for seniors and disabled persons. The number of annual rides provided has grown steadily during the past 5 years, reaching more than 200,000 by 2004. The need can be expected to continue to increase with the aging population. The required AnchorRIDES vehicle fleet of specially equipped vehicles will exceed 50 units.

Funding comes primarily from the MOA general funds and the Alaska Commission on Aging; rider fares, donations and Medicaid also contribute to revenues. Increasing annual budgets will be needed to provide AnchorRIDES services. By 2020, the service cost in 2004 dollars will be $3.2 million.

Photo courtesy of MOA Department of Public Transportation

AnchorRIDES provides demand-responsive service for seniors and disabled persons.

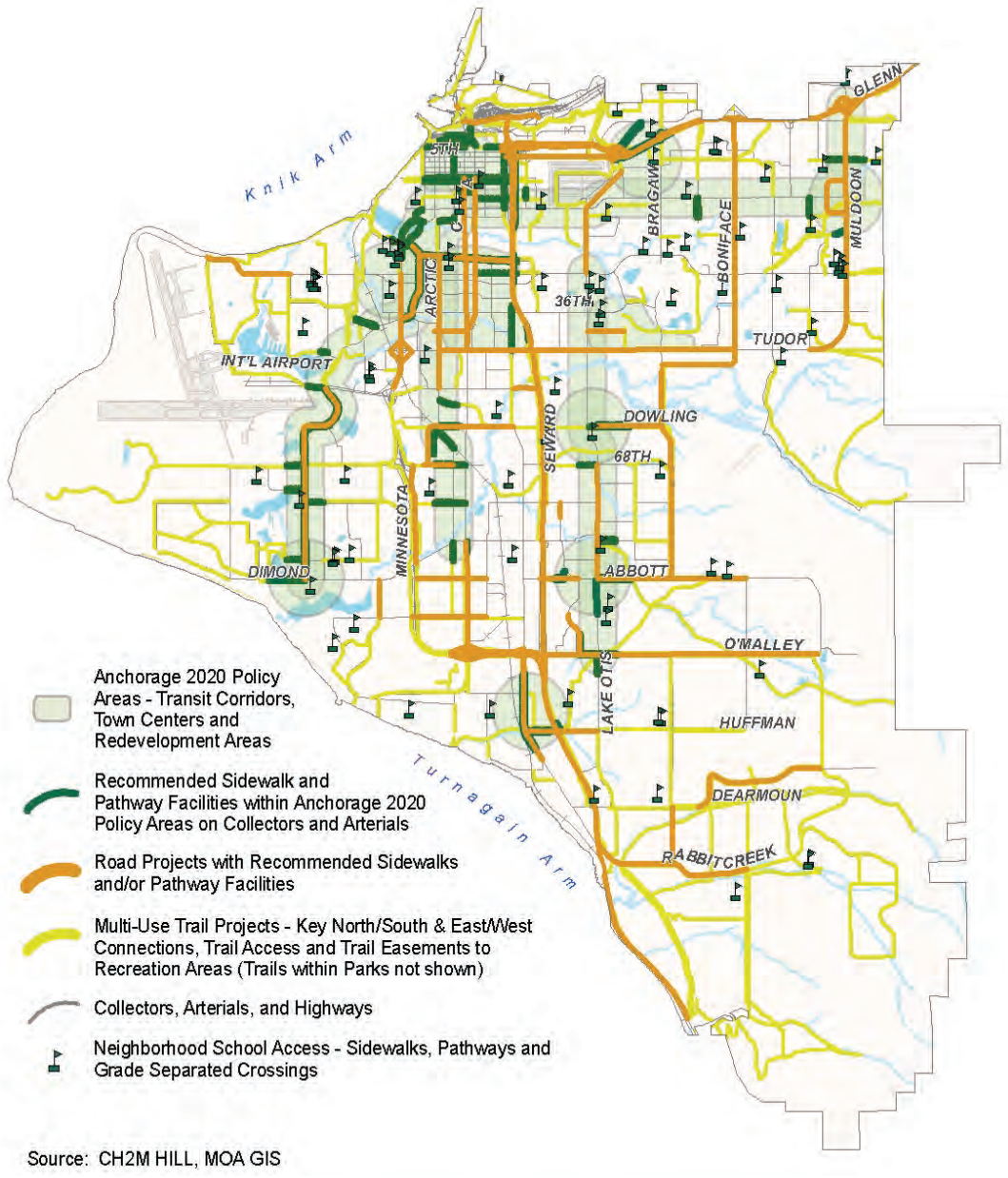
Pedestrian and Bicycle Facilities

Pedestrian and bicycle facilities contribute to a more attractive and livable city, enhance personal health, and help foster a sense of community. They are used by people to travel to and from the transit system, schools, parks, and other destinations. The primary thrust of pedestrian and bicycle facility improvements is completing major missing links in the sidewalk and trail system, preserving and rehabilitating the built infrastructure, establishing several major trail corridors, and funding sidewalk and trail maintenance. See Figure 8-6 and Table 8-2 (at the end of this chapter) for recommended trails and sidewalk projects.

This LRTP recommends the following:

- Funding of transportation enhancements that does not exceed 10 percent of the monies allotted to AMATS in the Transportation Improvement Program (TIP)
- Preparation of pedestrian plan that develops pedestrian design guidelines, inventories missing sidewalk links, and prioritizes sidewalk projects to implement
- Preparation of a commuter bicycle plan that sets priorities for project implementation

Figure 8-6. Recommended Pedestrian and Bicycle System



- Updates to the Areawide Trails Plan (newly named the Anchorage Non-motorized Transportation Plan) to establish the following as high priorities:
  - Safe walking paths along major connections in areas without sidewalks
  - Recreational trail corridors that are consistent with objectives of the pedestrian and bicycle plans
- Establishment of funding priorities for pedestrian, bicycle, and trail plan projects
- Enforcement of sidewalk clearing ordinances
- Creation of a youth education (Street Smarts) program for bicycle and pedestrian safety

Funding Priorities—Repair and Maintenance of Trails and Sidewalks

Anchorage has a world-class recreational trail system. These trails need to be preserved and rehabilitated. They need to be widened to meet current demand, resurfaced to address poor subsurface conditions, and lighted where appropriate. Additional needs include enhancement and maintenance of vegetation where there are not conflicts with personal property rights and maintenance of trail surfaces for summer and winter use. Maintaining the Anchorage network of sidewalks, particularly for winter pedestrian use is also a priority. Additional equipment for both trail and sidewalk maintenance may be necessary to ensure year-round access for pedestrians and bicyclists. This LRTP identifies the repair and maintenance of the existing trails and sidewalks as a funding priority that takes precedence over the addition of new trails when determining budget allocations.

Missing Links

Many missing links in the trail and sidewalk system are included in recommended road projects. These improvements will contribute 163 miles of sidewalk and multi-use pathways in the MOA. The road project trail and sidewalk improvements do not complete all missing links. The recommended pedestrian plan and update to the 1997 MOA *Areawide Trails Plan* will establish priorities for other missing link connections in sidewalks, bike routes, and recreational multi-use trails.

Pedestrian Plan and Sidewalk Projects

The MOA is developing a pedestrian plan called for in Anchorage 2020. This plan will inventory the existing pedestrian infrastructure and establish priorities for pedestrian projects to accomplish the following:

- Build missing links in the sidewalk system
- Remedy safety hazards such as those along the Northern Lights and Benson boulevards couplet, which has a high incidence of pedestrian and bicycle crashes
- Coordinate pedestrian facilities with transit stops and facilities
- Provide safe connections for walking to schools
- Recommend projects and priorities for missing links on arterials and collectors

The Pedestrian Plan will include recommendations for design of pedestrian facilities to meet safety and Americans with Disabilities Act (ADA) requirements and amenities to encourage pedestrian trips and enhance the aesthetics of our streets.

Anchorage Bicycle Plan

A parallel effort to the Pedestrian Plan is a focus on commuter bicycle routes to employment centers, commercial districts, transit stations, institutions, and recreational destinations.

The Anchorage Bicycle Plan will provide an inventory of the existing bicycle routes, identify and prioritize future projects, formulate policies and enforcement, investigate safety issues, describe education program needs, and implement updates of bicycle ordinances and design standards.

Update of the Areawide Trails Plan and Projects

The 1997 MOA *Areawide Trails Plan* will be updated in 2006 and will re-examine the Top 50 recommended projects. Projects may be added or deleted at that time. The following projects that were formally identified in the 1997 *Areawide Trails Plan*, the Top 50 trail projects, are some of the projects recommended for completion:

- Coastal Trail/Ship Creek Trail: 2nd Avenue via Ship Creek to Glenn Highway at Boniface Parkway
- Campbell Creek Trail: Old Seward Highway to Tudor Road
- A-C Couplet Midtown Trail
- Coastal Trail lighting
- DeArmoun Road: E. 140th Avenue to Birch Road, unpaved trail
- Hillside Trail (Chugach Rim)

- Huffman Road: Birch Road to Elmore Road
- Minnesota Bypass: Old Seward Highway to Tudor Road
- O'Malley: Birch Road to Hillside Drive
- O'Malley Road: Lake Otis Parkway to Birch Road
- Potter Marsh Nature Trail Extension/Connection
- Rabbit Creek Road: Old Seward Highway to Goldenview Drive
- Section 36 Interpretive Trails
- Tudor Road crossing connections to Chester Creek southwest of University Lake and to Far North Bicentennial Park
- University Drive: Providence Drive to Northern Lights Boulevard
- Upper Huffman Trailhead

In addition, the MOA will work cooperatively with the ARRC to identify trail opportunities within the ARRC right-of-way.

Establishing and Connecting Major Trail Corridors

Major cross-town trail corridors provide recreational opportunities and also allow bike, ski, and pedestrian commuters to reach employment centers. Major existing trails to be improved include the east-west Tour of Anchorage trail system and the north extension of the Coastal Trail.

Trail and Pathway Easements

Easements are a critical component to the connectivity of our recreational trail system. Easements through subdivisions need to be preserved, and trail easements should be established in new subdivisions, giving access to schools, shopping, employment, and recreational areas. Access (trailheads) to the existing Chugach State Park and the Coastal Trail are especially important.

Freight Movement

Anchorage is the gateway connection to the world for Alaska; freight shipments from elsewhere sustain the state and local economies. Updating and expanding the Port of Anchorage (currently in progress) is essential for accommodating larger vessels and adapting to changing requirements and technologies. The Port of Anchorage improvements are also required to strengthen and consolidate Anchorage's role and position in global commerce. Companion LRTP projects include improving access to the port, airport, and railroad terminals and connections to the National Highway System. The costs of moving goods directly affect end-user costs as well as economic vitality.

Design standards and connectivity via major arterial streets are important for distribution to freight destinations. The expected types and volume of truck traffic need to be reviewed as part of any roadway project. Identification of truck-related requirements would help to ensure that commercial vehicle movements (for which requirements include clearances and turning radii) are taken into consideration in the design of a project.

Efficiency of freight movements will be facilitated with expansion planned at the Port of Anchorage. Those improvements combined with road projects to provide better port access and relieve congestion on the road network will help motor carriers and other freight haulers. Figure 7-32 portrays road improvement projects that are especially relevant to freight operations.

The recent establishment of an AMATS Freight Advisory Committee is intended to provide a forum for continuing interaction with the freight community and dialog on issues and concerns affecting freight operations.

Regional Connections

Airport Access Improvements

The LRTP includes three major improvements to accommodate airport access from International Airport Road. At the junction of Jewel Lake and Spenard roads, a grade-separated interchange will replace the existing signalized intersection. This improvement also will separate the grade of the Alaska Railroad passenger rail service to the airport. A second International Airport Road interchange at Postmark Drive will accommodate freight shipments to and from air parcel and freight carriers, the post office, and delivery warehouses. It also will improve traffic flow into and out of the TSAIA passenger terminals and parking areas. The third grade-separation project of the Seward Highway and International Airport Road will

provide more direct access from the freeway to the airport.

Another road improvement, connection of Dowling and Raspberry roads, will enhance TSAIA access from the south.

Port of Anchorage Access Improvements

Truck access to and egress from the Port of Anchorage are significantly improved by projects linking the Port of Anchorage to the Glenn and Seward highways.

National Highway System Continuity and Improvements

The LRTP materially improves National Highway System connectivity and design consistency through Anchorage. The Glenn–Seward highways connection closes a long-standing continuity gap and establishes a limited-access corridor serving the entire MOA and region.

The Seward Highway is upgraded to six lanes north of O'Malley Road to accommodate increasing demand. Additionally, a system interchange linking the Seward Highway and Minnesota Drive, further strengthens the National Highway System connectivity. All of these projects improve access and connections with the port and airport intermodal terminals.

Knik Arm Crossing

The LRTP endorses completion of ongoing environmental and engineering studies for the Knik Arm crossing concept. These studies will produce information about the alignment, configuration, components, costs, and other features to support future decisions. Following completion of the necessary environmental documents, the crossing can be considered for inclusion in the LRTP by amendment. This step involves thorough public review and comments on all aspects of the potential project.

Commuter Rail Services

Commuter rail between the Mat-Su Borough and the Anchorage Bowl is another potential travel option. As recommended transit improvements are implemented, they will provide an efficient network for commuter rail travelers to make connections that will enhance the viability of commuter rail. The LRTP endorses future studies of the feasibility and funding of commuter rail service between the Mat-Su Borough and Anchorage.

Anchorage and Mat-Su Borough Collaboration on Common Interests

A convergence of physical growth and common interests is occurring between the MOA and the Mat-Su Borough. The two jurisdictions together house the majority of the population and employment in the state. Travel interactions and economic interest argue for collaboration on a number of fronts. As the urban region continues to grow, pressure will mount for urban infrastructure funding. Collaboration in regional planning and a unified voice on state funding issues should be supported by both jurisdictions.

Congestion (Mobility) Management

The crux of our transportation network congestion problem is coping with weekday surges that occur during AM and PM weekday commute hours. Congestion arises where there is more traffic than there is corresponding road capacity. For most hours of the day, our transportation network capacity is adequate and travel is relatively unrestricted.

Alternatives to Building More Capacity

Adding road and transit capacity cannot be the sole strategy for addressing transportation needs. Management strategies can complement capacity expansion projects and offer other ways to make transportation more efficient, more flexible, and less intrusive. They include optimizing the operating performance of the transportation network, creating more travel options, carefully managing road work schedules to minimize travel disruption, increasing operations efficiency, and managing demand to conserve and influence traveler behavior. Collectively, these strategies can relieve stress on the available capacity in peak commute hours and moderate travel impacts.

Managing the System

Management and operation of our current transportation system should be made as efficient as possible. This step should be taken along with investments in new projects. Performance metrics and monitoring for traffic operations and transit to make them as efficient as possible should be a continuing function.

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Traffic Performance Monitoring. A system upgrade of signal control technology is needed by 2010. It should include updated control equipment, management software, and real-time communications, and a traffic management center. Automatic collection of traffic volumes, surveillance monitoring, and adequate staff resources also will be needed to enable MOA traffic engineers to continuously be aware of actual traffic patterns and quickly adapt to them.

Spot Geometric Improvements. Focused geometric improvement (at intersections and on the freeways) is a proven tool for eliminating bottlenecks. In many cases, auxiliary lanes (between ramps) on freeways can eliminate or delay the need for expensive mainline widening. An additional turn bay at one approach to an intersection can reduce the delay for all movements, in all directions, at that intersection. Focused studies at key bottlenecks will reveal effective tactics and cost-efficient strategies.

Traffic Calming. Cut-through traffic (drivers avoiding congested major thoroughfares) on neighborhood streets is a safety and quality-of-life concern for many Anchorage neighborhoods. Traffic-calming tools can eliminate some negative impacts of cut-through traffic and mitigate the issue. The MOA 2001 *Traffic Calming Protocol Manual* identifies a toolbox of strategies that can be used for traffic-calming applications. They are intended for neighborhood focus, as opposed to spot improvements, and are used to discourage use of neighborhood streets for through trips. These strategies require engineering judgment. There is ample experience pertinent to the effectiveness and cost of these solutions.

Roadway Railroad Crossings. Roadway-rail intersection warning and preemption systems improve safety at at-grade rail crossings where grade-separation projects are not feasible. Roadway-rail intersection projects recommended include two road projects—Arctic Boulevard/ Dowling Road and International Airport Road—and two stand-alone projects—C Street and Spenard Road.

ITS Deployment. Responding to incident delay, weather and traffic reporting, CVISN, and automated data collection are examples of ITS deployment. This systemwide strategy supports commercial vehicle operation; assists in motor carrier operations; enhances communication, safety, and permit acquisition; and allows enforcement of rules and regulations. Current efforts should continue and be completed throughout the MOA.

Road Work Repair and Construction. Road repair and construction work in Alaska is done primarily in a short summer window. The scale of repair and construction work can seriously affect ongoing traffic operations. Accordingly, careful scheduling, management, and public communications are important to minimize impacts on the community and travelers.

Special Events. Special events can create large traffic impacts. Thoughtful planning and scheduling are needed to mitigate community and travel disruption.

Traveler Options Program

The purpose of the Traveler Options Program is to consider and apply appropriate means to improve travel choices and stimulate commuter demand for alternative transportation options. Initiatives would rely on public feedback and observed commuting response to specific programs and identifiable opportunities. Efforts to increase use of alternative transportation modes may be targeted to specific locales of the MOA or areawide. The traveler options program must be guided by results and scientific research to produce the greatest return on the investment.

Commuters need reasonable choices to get them to shift from driving. Better transit, employer-based incentives, and ride-share options will encourage employees to consider available alternatives for commuting.

Primary Program Elements

The primary program thrust will be the areas discussed below.

Support for Transit Ridership. Boosting the number of transit riders reduces traffic congestion and improves operating efficiencies. The proposed program will pursue incentives to build transit ridership. Examples include employer partnerships for commute programs, federal tax-free commuter benefits, bus pass sponsorships, and merchant partnering for rider reward programs.

Employer Partnerships. Proof is abundant that proactive employer participation is critical to success in changing commuter travel behavior. The

program will develop individual employer and employer group advocacies as catalysts for commuter change and will implement incentives and supportive programs to influence change. Telecommuting and flex schedules are two examples.

Vanpool Promotion. Vanpools are among the most cost-effective instruments for shifting commuting modes. They are particularly effective for military base workers for whom bus access is restricted. Vanpools serve larger groups and eliminate multiple solo long-distance trips and their associated impacts. User participant fees cover vanpool operating and maintenance costs. (Users are eligible for federal commuter tax benefits, too.) Forming vanpools is a particularly effective strategy to help address the Glenn Highway corridor traffic demand and relieve congestion. Therefore, funding vans and organizing travel pools will be a key activity in the corridor improvement program.

Ride-Share Promotion. Ride-share matching and promotion is a logical extension of the vanpool promotion activity and employer partnerships. Employers can reinforce this program with preferential carpooling parking and other incentives.

Guaranteed Ride Home Program. Getting commuters to ride share or use other means to travel to work is easier when they have back-up ways to deal with return trips in emergencies or other unanticipated circumstances. The "Guaranteed Ride Home" program discussed in Chapter 7 adds that backup when needed in Anchorage. Many other metropolitan areas have implemented such programs. Costs are minimal, generally less than one dollar per enrolled participant annually.

Parking Management. Parking availability and pricing influence travel behavior. Most employers provide free parking for employees; very few offer free or subsidized bus passes. Offering free parking without other options creates and reinforces built-in bias favoring automobile commuting. Experiments to change parking bias and driver behavior will address this problem.

School Access and Safety. Parents chauffeuring students to and from school create potentially unnecessary trips, additional traffic, and air pollution as well as safety issues around schools. As many as 15,000 daily automobile trips could be eliminated by aggressive implementation of school travel demand initiatives.

A Walking School Bus program will be piloted to reduce school traffic. As a side benefit, this program will encourage healthy exercise. High school student parking is another potential demand reduction area.

Value Pricing and Cash Incentives. Pilot experiments that stimulate traveler behavior change with value pricing or cash incentive strategies to encourage travelers to use alternative modes of transportation will be designed and evaluated. Response levels, cost-effectiveness, and transportation system impacts will be assessed.

Travel Behavior Research. Basic research and market surveys will inform strategies, gauge markets, guide design pilot projects, and evaluate results of initiatives.

Targeting Specific Problems

The traveler behavior change program will identify specific problems, develop strategies, and target actions to address those problems. Two target problems have been identified:

- Changing solo-driver commute demand on the Glenn Highway
- Reducing vehicle demand on Northern Lights Boulevard between the Seward Highway and Bragaw Street

Other targets will be delineated as the Congestion Management Program moves forward.

Transportation and Anchorage 2020

Land use and travel are tightly intertwined. The geographical distribution of land uses, development densities, site designs, and proximity to complementary uses directly influence the number and length of trips, mode choice, viability of walking and cycling, attractiveness of transit service, and travel origin–destination patterns. The findings of this LRTP will help the MOA Planning Department refine and implement Anchorage 2020.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Funded Projects (2005–2009)				
202	C St. Extension Phase III	O'Malley Rd.	Dimond Blvd.	Add new facility—extend C St. as a 4-lane limited access arterial to O'Malley Rd.; 2005 construction; **Purpose:** Circulation, access, and freight; **Facility class:** Major arterial (3); **Length of project:** 1.5 miles; **Length of new sidewalk:** 1.5 miles; **Length of new pathway:** 1.5 miles; **Estimated cost:**[a] $3.15; **Funding source:** GARVEE Bond; **Linked project(s):** None.
203	Fireweed Ln. Surface Rehabilitation	Spenard Rd.	Seward Hwy.	Reconstruct roadway to improve surface and safety for automobiles and non-motorized users; **Purpose:** Maintenance and safety; **Facility class:** Minor arterial (4); **Length of project:** 1.25 miles; **Length of new sidewalk:** 1.25 miles; **Length of new pathway:** 1.25 miles; **Estimated cost:**[a] $9.2; **Funding source:** TIP; **Linked project(s):** 406, 429, and 514.
204	DeArmoun Rd. Reconstruction Phase II	140th Ave.	Hillside Dr.	Reconstruct the existing alignment, pavement, and pedestrian facilities (3R project); minimize impact on private property; **Purpose:** Safety and capacity; **Facility class:** Collector; **Length of project:** 2.4 miles; **Length of new sidewalk:** 2.4 miles; **Length of new pathway:** 2.4 miles; **Estimated cost:**[a] $10.7; **Funding source:** TIP; **Linked project(s):** None.
206	Victor Rd.	100th Ave.	Dimond Blvd.	Upgrade roadway to minor arterial standard with a minimum of 2 lanes with a center turn lane; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 0.5 mile; **Length of new sidewalk:** 0.5 mile; **Length of new pathway:** 0.5 mile; **Estimated cost:**[a] $7.6; **Funding source:** TIP; **Linked project(s):** 417.
209	Glenn Hwy.	Ingra St./Gambell St.	McCarrey St.	Reconstruct with one additional lane in each direction; **Purpose:** Capacity and freight; **Facility class:** Major arterial (3) and freeway (1); **Length of project:** 2.4 miles; **Length of new sidewalk:** 2.4 miles; **Length of new pathway:** 2.4 miles; **Estimated cost:**[a] $22.4; **Funding source:** TIP; **Linked project(s):** 309.
210	Minnesota/C St. Interchange	C St.	C St.	Add new facility—interchange at Minnesota Dr./O'Malley Rd. and C St.; **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1); **Length of project:** 0.6 mile; **Length of new sidewalk:** 0.6 mile; **Length of new pathway:** 0.6 mile; **Estimated cost:**[a] $26.5; **Funding source:** GARVEE Bond; **Linked project(s):** 202.
211	Creekside Parkway	DeBarr Rd. at Creekside	DeBarr Rd. at Muldoon	Add new facility—collector loop providing access within Creekside Town Center; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.9 mile; **Length of new sidewalk:** 0.9 mile; **Length of new pathway:** 0.9 mile; **Estimated cost:**[a] $17.2; **Funding source:** TIP; **Linked project(s):** None.
213	Abbott Loop Extension	Abbott Rd.	E. 48th Ave.	Add new facility—extension of Bragaw Rd. from 48th Ave. to Abbott Rd.; 3 lanes between Abbott Rd. and 68th Ave., and 4 lanes between 68th Ave. and 48th Ave.; 2005 construction start; **Purpose:** Circulation and access; **Facility class:** Major arterial (3); **Length of project:** 1.05 miles; **Length of new sidewalk:** 1.05 miles; **Length of new pathway:** 1.05 miles; **Estimated cost:**[a] $37.5; **Funding source:** State bond; **Linked project(s):** 416 and 604.
214	Northern Lights Blvd.	Nathaniel Ct.	Wisconsin Ave.	Upgrade to urban standards with center turn lane; 2005 construction; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 0.5 mile; **Length of new sidewalk:** 0.5 mile; **Length of new pathway:** 0.5 mile; **Estimated cost:**[a] $9.1; **Funding source:** MOA Bond; **Linked project(s):** 427 and 509.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Funded Projects (2005–2009) (continued)				
215	3rd Ave. Surface Rehabilitation	Post Rd.	Reeve Blvd.	Restripe from 4 lane to 3 lane, including sidewalk addition/improvements; 2005 construction; **Purpose:** Capacity and freight; **Facility class:** Minor arterial (4); **Length of project:** 0.75 miles; **Length of new sidewalk:** 1.5 miles; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $3.3; **Funding source:** Bond; **Linked project(s):** 603.
216	Hartzell Rd. Extension	Lore Rd.	79th Ave.	Add new facility—2-lane collector between Lore Rd. and 79th Ave.; 2005 construction; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.2 mile; **Length of new sidewalk:** 0.2 mile; **Length of new pathway:** 0.2 mile; **Estimated cost:**[a] $2.2; **Funding source:** Bond; **Linked project(s):** None.
217	Independence Dr. Extension	Abbott Rd.	O'Malley Rd.	Add new facility—rehabilitate surface from Colony Lp. to Abbott Rd. and extend Independence Dr. from Colony Lp. to O'Malley Rd., including a study on connection with O'Malley Rd.; 2005 construction; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.4 mile; **Length of new sidewalk:** 0.4 mile; **Length of new pathway:** 0.4 mile; **Estimated cost:**[a] $1.3; **Funding source:** Bond; **Linked project(s):** None.
219	Lake Otis Pkwy. Surface Rehabilitation	Abbott Rd.	68th Ave.	Rehabilitate pavement and add traffic signal at 72nd Ave; rehabilitate sidewalks to meet ADA standards; 2005 construction; **Purpose:** Maintenance and safety; **Facility class:** Major arterial (3); **Length of project:** 1.5 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $5; **Funding source:** Bond; **Linked project(s):** 409 and 425.
221	Raspberry Rd. Extension	Rovenna St.	Arctic Blvd.	Add new facility—reconstruct and extend to meet future demands; 2005 construction; **Purpose:** Circulation, access, and freight; **Facility class:** Minor arterial (4); **Length of project:** 0.5 mile; **Length of new sidewalk:** 0.5 mile; **Length of new pathway:** 0.5 mile; **Estimated cost:**[a] $1.5; **Funding source:** Bond; **Linked project(s):** 308.
224	Northern Lights Blvd.	Postmark Dr.	Nathaniel Ct.	Reconstruct pavement; add shoulders and turning pockets where needed; **Purpose:** Circulation, access, and safety; **Facility class:** Minor arterial (4); **Length of project:** 1.2 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $18.4; **Funding source:** Bond; **Linked project(s):** None.
225	92nd Ave.	Minnesota Dr.	King St.	Add new facility—upgrade missing minor arterial to urban standards; **Purpose:** Circulation, access, and freight; **Facility class:** Minor arterial (4); **Length of project:** 2 miles; **Length of new sidewalk:** 0 miles; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $6.5; **Funding source:** Bond; **Linked project(s):** None.
226	40th Ave. Extension	Lake Otis Pkwy.	Piper St.	Add new facility—2-lane collector connection from Lake Otis Pkwy. to Piper St. to serve University-Medical District; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 1 mile; **Length of new sidewalk:** 2 miles; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $4.5; **Funding source:** Bond; **Linked project(s):** None.
309	Bragaw Rd./Glenn Hwy. Interchange	Airport Heights Rd.	Bragaw Rd.	Add new facility—Bragaw Rd. interchange; **Purpose:** Circulation, access, and freight; **Facility class:** Ramps (7&8); **Length of project:** 0.3 mile; **Length of new sidewalk:** 0.3 mile; **Length of new pathway:** 0.3 mile; **Estimated cost:**[a] $33.2; **Funding source:** TIP; **Linked project(s):** 209 and 603.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b]				
301	International Airport Rd. Extension	Old Seward Hwy.	Brayton	Add new facility—grade separation and extension of International Airport Rd. from Homer Dr. to Brayton Dr. (part of 303); **Purpose:** Circulation, access, and freight; **Facility class:** Major arterial (3); **Length of project:** 0.35 mile; Length of new sidewalk; 0.7 mile; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $34.9; **Funding source:** TIP; **Linked project(s):** 303.
303	Seward Hwy.	O'Malley Rd.	36th Ave.	Reconstruct and widen from 4 to 6 lanes from Tudor Rd. to O'Malley Rd.; minor pathway south of O'Malley Rd.; frontage road improvements, landscaping, and possible noise walls; **Purpose:** Capacity and freight; **Facility class:** Freeway (1); **Length of project:** 4.5 miles; **Length of new sidewalk:** 4.5 miles; **Length of new pathway:** 4.5 miles; **Estimated cost:**[a] $81.7; **Funding source:** TIP; **Linked project(s):** 201, 301, 305, 306, 311, 516, and 603.
304	68th Ave. Extension	Homer Dr.	Brayton Dr.	Add new facility—grade separation and extension of 68th Ave. from Homer Dr. to Brayton Dr. (part of 303); **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.3 mile; **Length of new sidewalk:** 0.6 mile; **Length of new pathway:** 0 mile; **Estimated cost:**[a] $23.4; **Funding source:** TIP; **Linked project(s):** 311.
305	76th Ave. Extension	Homer Dr.	Brayton Dr.	Add new facility—grade separation and extension of 76th Ave. from Homer Dr. to Brayton Dr. (part of 303); **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.1 mile; **Length of new sidewalk:** 0.2 mile; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $23.4; **Funding source:** TIP; **Linked project(s):** 303.
306	92nd Ave. Extension	Homer Dr.	Brayton Dr.	Add new facility—grade separation and extension of 92nd Ave. from Homer Dr. to Brayton Dr. (part of 303); **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.1 mile; **Length of new sidewalk:** 0.2 mile; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $23.4; **Funding source:** TIP; **Linked project(s):** 303.
308	Dowling Rd. Extension	Raspberry Rd.	Old Seward Hwy.	Add new facility—extend Dowling Rd. from Old Seward Hwy. to Minnesota Dr., improve the rest of the facility, and replace one bridge; **Purpose:** Circulation, access, and freight; **Facility class:** Major arterial (3); **Length of project:** 1.65 miles; **Length of new sidewalk:** 1.65 miles; **Length of new pathway:** 1.65 miles; **Estimated cost:**[a] $115; **Funding source:** TIP; **Linked project(s):** 201, 221, and 416.
401	O'Malley Rd.	Seward Hwy.	Hillside Dr.	Reconstruct to improve safety and capacity. 3-lane section east of Lake Otis Pkwy. and 5-lane section between Seward Hwy. and Lake Otis Pkwy; **Purpose:** Capacity; **Facility class:** Major arterial (3); **Length of project:** 3.65 miles; **Length of new sidewalk:** 3.65 miles; **Length of new pathway:** 3.65 miles; **Estimated cost:**[a] $20; **Funding source:** TIP; **Linked project(s):** None.
404	Old Seward Hwy.	Brandon St.	O'Malley Rd.	Reconstruct to a multi-lane facility; **Purpose:** Capacity; **Facility class:** Major arterial (3); **Length of project:** 1.5 miles; **Length of new sidewalk:** 1.5 miles; **Length of new pathway:** 1.5 miles; **Estimated cost:**[a] $15; **Funding source:** TIP; **Linked project(s):** 407 and 312.
405	Eklutna River Bridge	New Glenn Hwy.	New Glenn Hwy.	Add commercial vehicle bridge clearance warning system; **Purpose:** Maintenance, safety, and freight; **Facility class:** Not applicable; **Length of project:** 0.3 mile; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $0.35; **Funding source:** TIP; **Linked project(s):** None.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b] (continued)				
406	Spenard Rd. Surface Rehabilitation	Minnesota Rd.	Minnesota Rd. Onramp	Reconstruct from 4 to 2 lanes with a center turn lane, plus pedestrian facilities, including Spenard Rd./36th Ave. couplet; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 0.15 mile; **Length of new sidewalk:** 0.15 miles; **Length of new pathway:** 0.15 miles; **Estimated cost:**[a] $2.5; **Funding source:** TIP; **Linked project(s):** None.
407	Huffman Rd.	Old Seward Hwy.	Lake Otis Pkwy.	Increase from 2 to 4 lanes and improve intersections and pedestrian facilities; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 1 mile; **Length of new sidewalk:** 1 mile; **Length of new pathway:** 1 mile; **Estimated cost:**[a] $7.5; **Funding source:** TIP; **Linked project(s):** 404.
409	Abbott Rd.	Lake Otis Pkwy.	Birch Rd.	Increase from 2 to 4 lanes and improve intersections and pedestrian facilities; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 2 miles; **Length of new sidewalk:** 2 miles; **Length of new pathway:** 2 miles; **Estimated cost:**[a] $13.5; **Funding source:** TIP; **Linked project(s):** 219.
414	Arctic Blvd. Surface Rehabilitation	Fireweed Ln.	International Airport Rd.	Rehabilitate from 4 to 2 lanes plus a center turn lane from Fireweed Ln. to 36th Ave. (2006 construction); upgrade from 4 to 5 lanes from 36th Ave. to Tudor Rd. (2008 construction); upgrade from 4 to 5 lanes from Tudor Rd. to Raspberry Rd., and southbound right-turn lane at Tudor Rd. (2005 construction); **Purpose:** Maintenance and safety; **Facility class:** Minor arterial (4); **Length of project:** 3 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $15.2; **Funding source:** TIP; **Linked project(s):** 221 and 423.
415	Lake Otis Pkwy.	Northern Lights Blvd.	DeBarr Rd.	Reconstruct and increase capacity, bridge over Chester Creek, Lake Otis/Northern Lights Blvd. intersection and pedestrian/landscape facilities; **Purpose:** Capacity; **Facility class:** Major arterial (3); **Length of project:** 0.85 miles; **Length of new sidewalk:** 0.85 mile; **Length of new pathway:** 0.85 mile; **Estimated cost:**[a] $24.3; **Funding source:** TIP; **Linked project(s):** 603 and 632.
416	Dowling Rd. Extension	Laurel St.	Abbott Lp. Rd.	Add new facility—extend Dowling Rd. from Laurel St. to Abbott Loop Rd.; **Purpose:** Circulation and access; **Facility class:** Major arterial (3); **Length of project:** 0.9 mile; **Length of new sidewalk:** 0.9 mile; **Length of new pathway:** 0.9 mile; **Estimated cost:**[a] $20; **Funding source:** State general fund; **Linked project(s):** 201 213, and 308.
417	Northwood Dr. Extension	88th Ave.	Dimond Blvd.	Add new facility—extend Northwood Dr. from Dimond Blvd. to 88th Ave; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.5 mile; **Length of new sidewalk:** 1 mile; **Length of new pathway:** 8.9 miles; **Estimated cost:**[a] $11.8; **Funding source:** Bond; **Linked project(s):** None.
418	100th Ave. Extension	Minnesota Dr.	King St.	Add new facility—extend 100th Ave. between Minnesota Dr. and King St.; **Purpose:** Circulation, access, and freight; **Facility class:** Collector (5); **Length of project:** 0.95 mile; **Length of new sidewalk:** 0.95 mile; **Length of new pathway:** 0.95 mile; **Estimated cost:**[a] $9.1; **Funding source:** Bond; **Linked project(s):** None.
419	Muldoon Rd. Improvements	Tudor Rd.	Glenn Hwy.	Landscaping and pedestrian improvements; **Purpose:** Maintenance and safety; **Facility class:** Major arterial (3); **Length of project:** 3.55 miles; **Length of new sidewalk:** 3.55 miles; **Length of new pathway:** 3.55 miles; **Estimated cost:**[a] $6.5; **Funding source:** TIP; **Linked project(s):** None.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b] (continued)				
507	Jewel Lake Rd.	Dimond Blvd.	International Airport Rd.	Reconstruct Jewel Lake to operate as a 2 lane with center turn lane; **Purpose:** Maintenance and safety; **Facility class:** Major arterial (3); **Length of project:** 2.9 miles; **Length of new sidewalk:** 2.9 miles; **Length of new pathway:** 2.9 miles; **Estimated cost:**[a] $19.9; **Funding source:** Bond; **Linked project(s):** 640.
603	Glenn Hwy./Seward Hwy. Connection	Glenn Hwy./Bragaw St.	Seward Hwy./Tudor Rd.	Construct freeway connection between Airport Heights Rd. and 36th Ave.; includes interchanges at Airport Heights Rd. and 36th Ave., freeway access and egress ramps elsewhere along the alignment; depressed segments of freeway that include the construction of bridges and decking above freeway for cross streets, community amenities, and redevelopment over highway airspace (see the section in this chapter titled Building the Glenn-Seward Highway Connection" for further discussion); **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1) and Ramps (7 & 8); **Length of project:** 4.9 miles; **Length of new sidewalk:** 4.9 miles; **Length of new pathway:** 4.9 miles; **Estimated cost:**[a] $581; **Funding source:** TIP/National Highway System; **Linked project(s):** 209, 215, 303, 309, and 502.
604	48th Ave./Boniface Pkwy. Extension	48th Ave./Bragaw Rd.	Boniface Pkwy./Tudor Rd.	Add new facility—extend Boniface Pkwy. as an expressway parallel to Tudor Rd. connecting at the intersection of 48th Ave. and Bragaw Rd.; **Purpose:** Circulation and access; **Facility class:** Major arterial (3); **Length of project:** 1.2 miles; **Length of new sidewalk:** 1.2 miles; **Length of new pathway:** 1.2 miles; **Estimated cost:**[a] $13.9; **Funding source:** TIP; **Linked project(s):** 213, 416, and 633.
618	40th Ave. Extension	Arctic Blvd.	Eureka St.	Add new facility—extend 40th Avenue from Arctic Blvd. to Eureka St.; **Purpose:** Capacity; **Facility class:** Collector (5); **Length of project:** 0.4 mile; **Length of new sidewalk:** 0.4 mile; **Length of new pathway:** 0.4 mile; **Estimated cost:**[a] $2.7; **Funding source:** Bond; **Linked project(s):** None.
628	92nd Ave./Academy Dr. Extension	Brayton Dr.	Abbott Rd.	Add new facility—extend 92nd Avenue from Brayton Dr. to Abbott Rd.; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.45 mile; **Length of new sidewalk:** 0.45 mile; **Length of new pathway:** 0.45 miles; **Estimated cost:**[a] $4; **Funding source:** TIP; **Linked project(s):** None.
633	Boniface Pkwy. Access Management	Tudor Rd.	Glenn Hwy.	Add access management and related local circulation access to preserve capacity on Boniface Pkwy; **Purpose:** Capacity; **Facility class:** Expressway (2); **Length of project:** 3.1 miles; **Length of new sidewalk:** 3.1 miles; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $20; **Funding source:** TIP; **Linked project(s):** 604.
705	Tudor Rd. Access Management	Seward Hwy.	Arctic Blvd.	Add access management and turn restrictions; modify local connections to make adjacent property access to other roads; east-west or north-south in lieu of direct access from Tudor Rd. wherever practical; **Purpose:** Circulation, access, and freight; **Facility class:** Major arterial (3); **Length of project:** 1.25 miles; **Length of new sidewalk:** 1.25 miles; **Length of new pathway:** 1.25 miles; **Estimated cost:**[a] $12.5; **Funding source:** TIP; **Linked project(s):** None.

The highlighting identifies the location of added text. See the Revisions chapter at the end of the book.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b] (continued)				
706	Tudor Rd. Access Management	Seward Hwy.	Patterson St.	Add access management and turn restrictions; modify local connections to make adjacent property access to other roads; east-west or north-south in lieu of direct access from Tudor Rd. wherever practical; **Purpose:** Circulation, access, and freight; **Facility class:** Major arterial (3); **Length of project:** 3.7 miles; **Length of new sidewalk:** 3.7 miles; **Length of new pathway:** 3.7 miles; **Estimated cost:**[a] $37; **Funding source:** TIP; **Linked project(s):** None.
707	Glenn Hwy. at Eagle River	Hiland Rd.	Artillery Rd.	Make necessary improvements at Hiland Rd. and Artillery Rd. interchanges and add a 3rd lane northbound and southbound between Hiland Rd. and Artillery Rd.; bridge improvements at Eagle River interchange, Hiland Rd. interchange, and 2 Eagle River bridges; **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1); **Length of project:** 2 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** 4 miles; **Estimated cost:**[a] $65; **Funding source:** TIP; **Linked project(s):** 639, 710, and 804.
801	92nd Ave.	King St.	Seward Hwy.	Add new facility—extend 92nd Ave. from King St. to Seward Hwy. and evaluate grade separation crossing of railroad; **Purpose:** Circulation, access, and freight; **Facility class:** Minor arterial; **Length of project:** 0.75 mile; **Length of new sidewalk:** 1.5 miles; **Length of new pathway:** 0 mile; **Estimated cost:**[a] $15; **Funding source:** Bond; **Linked project(s):** 225 and 306.
802	84th Ave.	Hartzell Rd.	Lake Otis Pkwy.	Reconstruct existing road and add new segment; **Purpose:** Circulation and access; **Facility class:** Collector; **Length of project:** 0.5 mile; **Length of new sidewalk:** 1 mile; **Length of new pathway:** 0 mile; **Estimated cost:**[a] $7; **Funding source:** TIP; **Linked project(s):** None.
803	Oilwell Rd.	North of Muldoon Rd. Interchange	Elmendorf Air Force Base Access Gate	Upgrade existing facility; **Purpose:** Safety and capacity; **Facility class:** Minor arterial; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:**[a] $5; **Funding source:** TIP; **Linked project(s):** 610.
804	Glenn Hwy. Interchange Operational Analysis and Improvements	Muldoon Rd. Interchange	Eklutna	Perform an operational and safety evaluation of all interchange facilities on the Glenn Hwy., including Thunderbird Falls exit and North Peters Creek; **Purpose:** Safety and capacity; **Facility class:** Freeway; **Length of project:** Not applicable; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $5; **Funding source:** TIP; **Linked project(s):** 707.
805	Huffman Rd.	Elmore Rd.	Birch Rd.	Reconstruct road; **Purpose:** Safety; **Facility class:** Collector; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:**[a] $7.1; **Funding source:** TIP; **Linked project(s):** 702 and 806.
806	Birch Rd.	Huffman Rd.	O'Malley Rd.	Reconstruct road; **Purpose:** Safety; **Facility class:** Collector; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:**[a] $8; **Funding source:** TIP; **Linked project(s):** 805.
807	North Access to University-Medical District	Providence Dr.	Northern Lights Blvd.	Add new facility—north access to University-Medical District; **Purpose:** Circulation, capacity, and safety; **Facility class:** To be determined; **Length of project:** 0.5 mile; **Length of new sidewalk:** 0.5 mile; **Length of new pathway:** 0.5 mile; **Estimated cost:**[a] $25; **Funding source:** TIP; **Linked project(s):** None.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b] (continued)				
808	Mountain Air Dr.	Rabbit Creek Rd.	E. 164th Ave.	Add new facility—extend Mountain Air Dr. from Rabbit Creek Rd. to E. 164th Ave. (extended); **Purpose:** Circulation and access; **Facility class:** Collector; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:** To be determined; **Funding source:** To be determined; **Linked project(s):** None.
809	Unnamed (Heritage Land Bank/Mental Health Trust/Private)	Goldenview Dr.	Potter Valley Rd./Old Seward Hwy.	Add new facility from Goldenview Dr. to Potter Valley Rd./Old Seward Hwy.; **Purpose:** Circulation and access; **Facility class:** Collector; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:** To be determined; **Funding source:** To be determined; **Linked project(s):** None.
Long-Term Projects (2016–2025)				
302	Seward Hwy./O'Malley Rd. Interchange	Old Seward Hwy.	Seward Hwy.	Add freeway system interchange at Seward Hwy. and O'Malley Rd., and interchange at Old Seward Highway and O'Malley Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Ramps (7&8); **Length of project:** 3.9 miles; **Length of new sidewalk:** 3.9 miles; **Length of new pathway:** 3.9 miles; **Estimated cost:**[a] $60.6; **Funding source:** TIP; **Linked project(s):** 210 and 311.
311	Seward Hwy.	O'Malley Rd.	Rabbit Creek Rd.	Add ramp and pedestrian facility improvements from O'Malley Rd. to Rabbit Creek Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1); **Length of project:** 3 miles; **Length of new sidewalk:** 3 miles; **Length of new pathway:** 3 miles; **Estimated cost:**[a] $9.5; **Funding source:** State general fund; **Linked project(s):** 303.
501	Whitney Rd.	North C St.	Post Rd.	Upgrade Whitney Rd. to urban industrial standards; may include relocation of the Whitney Rd.; **Purpose:** Maintenance, safety, and freight; **Facility class:** Collector (5); **Length of project:** 1.05 miles; **Length of new sidewalk:** 1.05 miles; **Length of new pathway:** 1.05 miles; **Estimated cost:**[a] $7; **Funding source:** TIP; **Linked project(s):** 502; **Priority:** Long term (2016-2025)
502	Ingra-Gambell Extension	3rd Ave.	Whitney Rd.	Add new facility—extend Ingra St./Gambell St. to Ship Creek Ave. and Whitney Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Major arterial (3); **Length of project:** 0.6 mile; **Length of new sidewalk:** 0.6 mile; **Length of new pathway:** 0.6 mile; **Estimated cost:**[a] $26; **Funding source:** TIP; **Linked project(s):** 209, 215, 501, and 603; **Priority:** Long term (2016-2025)
506	Seward Hwy.	Potter Weigh Station	Rabbit Creek Rd.	Reconstruct and widen Seward Hwy. between Potter Weigh Station and Rabbit Creek Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1); **Length of project:** 2.65 miles; **Length of new sidewalk:** 2.65 miles; **Length of new pathway:** 2.65 miles; **Estimated cost:**[a] $35; **Funding source:** TIP; **Linked project(s):** 303 and 311; **Priority:** Long term (2016-2025)
510	Minnesota Dr. (Northbound)	26th Ave.	16th Ave.	Reconstruct and add one lane to improve capacity northbound; **Purpose:** Capacity and freight; **Facility class:** Major arterial (3); **Length of project:** 0.7 mile; **Length of new sidewalk:** 0.7 mile; **Length of new pathway:** 0.7 mile; **Estimated cost:**[a] $16.7; **Funding source:** TIP; **Linked project(s):** None; **Priority:** Long term (2016-2025)

The highlighting identifies the location of added text. See the Revisions chapter at the end of the book.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Long-Term Projects (2016–2025) (continued)				
514	A/C St. Couplet Restripe	Tudor Rd.	9th Ave.	Restripe to include 4 lanes in each direction; **Purpose:** Capacity and freight; **Facility class:** Major arterial (3); **Length of project:** 4.5 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $0.48; **Funding source:** TIP; **Linked project(s):** None.
515	C St./Ocean Dock Rd. Access Ramp	C St. Viaduct	Ocean Dock Rd.	Reconstruct the ramp at Ship Creek; **Purpose:** Maintenance, safety, and freight; **Facility class:** Collector (5); **Length of project:** 0.05 mile; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $10; **Funding source:** TIP; **Linked project(s):** None.
518	Postmark Dr./ International Airport Rd. Grade Separation	Postmark Dr.	International Airport Rd.	Add grade separation of International Airport Rd. over Postmark Dr; **Purpose:** Circulation, access, and freight; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 0 mile; **Estimated cost:**[a] $21; **Funding source:** TIP; **Linked project(s):** None.
609	Jewel Lake Rd./ International Airport Rd. Grade Separation	Jewel Lake Rd.	Northwood St.	Construct interchange at International Airport Road and Jewel Lake incorporating a grade separation of the railroad and construct a grade separation of International Airport Road near Northwood street with realignment of railroad to the south side of International Airport Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** 0 miles; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $45; **Funding source:** TIP; **Linked project(s):** None.
610	Muldoon Rd. Interchange	Glenn Hwy.	at Muldoon Rd.	Reconstruct ramps at the intersection of Glenn Hwy. and Muldoon Rd. to meet current safety standards; **Purpose:** Capacity and freight; **Facility class:** Ramps (7 & 8); **Length of project:** Not applicable; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $5.1; **Funding source:** TIP; **Linked project(s):** None.
621	Minnesota Dr. Frontage Road	Dimond Blvd.	Raspberry Rd.	Add new facility on the east side of Minnesota Dr. only; one-way frontage road parallel to Minnesota Dr. between Dimond Blvd. and Raspberry Rd.; **Purpose:** Capacity; **Facility class:** Frontage (10); **Length of project:** 3.1 miles; **Length of new sidewalk:** 3.1 miles; **Length of new pathway:** 3.1 miles; **Estimated cost:**[a] $16.8; **Funding source:** TIP; **Linked project(s):** None.
627	Minnesota Dr. Corridor	International Airport Rd.	Northern Lights Blvd.	Extend controlled access from International Airport Rd. through an interchange at Tudor Rd. and widen the arterial to 8 lanes north of Tudor Rd.; **Purpose:** Capacity and freight; **Facility class:** Frontage (10); **Length of project:** 1.6 miles; **Length of new sidewalk:** 3.2 miles; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $19.9; **Funding source:** TIP; **Linked project(s):** 406 and 638.
632	Lake Otis Pkwy. Extension	DeBarr Rd.	Glenn Hwy.	Add new facility—extend Lake Otis Parkway to Glenn Hwy. interchange at Airport Heights Rd.; **Purpose:** Circulation and access; **Facility class:** Minor arterial (4); **Length of project:** 0.7 mile; **Length of new sidewalk:** 0.7 mile; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $16; **Funding source:** TIP; **Linked project(s):** 415 and 603.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Long-Term Projects (2016–2025) (continued)				
638	Minnesota Dr./Tudor Rd. Interchange	Minnesota Dr.	at Tudor Rd.	Add new facility—construct grade-separated interchange; **Purpose:** Capacity and freight; **Facility class:** Major arterial(3) Ramps (7&8); **Length of project:** Not applicable; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $25; **Funding source:** TIP; **Linked project(s):** 627.
639	Glenn Hwy. HOV Lane	Boniface Pkwy.	Eagle River; Artillery Rd. Interchange	Widen with lanes to the inside with 1 lane each direction designated non-SOV, includes Ship Creek Bridge improvements; **Purpose:** Capacity and freight; **Facility class:** Freeway (I); **Length of project:** 11.3 miles; **Length of new sidewalk:** 0 mile; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $38.3; **Funding source:** TIP; **Linked project(s):** 610, 707, and 710.
702	Elmore Rd. Extension	Rabbit Creek Rd.	DeArmoun Rd.	Add new facility—extend Elmore Rd. from Rabbit Creek Rd. to DeArmoun Rd.; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 1 mile; **Length of new sidewalk:** 2 miles; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $8; **Funding source:** TIP; **Linked project(s):** 805.
708	Rabbit Creek Rd.	Seward Hwy.	Goldenview Dr.	Upgrade to 3-lane arterial; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 1 mile; **Length of new sidewalk:** 1 mile; **Length of new pathway:** 1 mile; **Estimated cost:**[a] $4.5; **Funding source:** TIP; **Linked project(s):** 702.
709	Railroad. Grade Separation at Spenard Rd. and at C St.	Spenard Rd.	at C St.	Add railroad grade separation at Spenard Rd. near 36th Ave. ($105), and at C St. near Raspberry Rd. ($25); **Purpose:** Maintenance, safety, and freight; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $130; **Funding source:** Other; **Linked project(s):** None.
710	Glenn Hwy. HOV Lane	Eagle River; Artillery Rd. Interchange	Mile 21.5 S. Peters Creek Interchange (Voyles Rd.)	Widen Glenn Hwy. to add an additional non-SOV lane in each direction, including interchange upgrades at Peters Creek Bridge; **Purpose:** Capacity and freight; **Facility class:** Freeway; **Length of project:** 8.1 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $61.8; **Funding source:** TIP; **Linked project(s):** None.
Projects for Which the Funding Priority Is Undetermined				
601	Lake Otis Pkwy./ Tudor Rd. Intersection	Lake Otis Pkwy.	Tudor Rd.	Add left- and right-turn lanes where needed to improve capacity and efficiency of existing intersection; finished configuration will have 2 left-turn lanes and one free right-turn lane at each approach; **Purpose:** Circulation and access; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** 0 miles; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $10; **Funding source:** Bond/TIP; **Linked project(s):** 705 and 706. (The MOA Traffic Engineer, in consultation with DOT&PF, shall provide a report to AMATS Policy Committee within 6 months after Project 213 is open for public use to identify the congestion relief accomplished or expected to be accomplished with full completion of Projects 213 and 416 and quantifying the additional congestion relief that may be accomplished through Project 601.)

[a] Estimated costs are in millions of 2004 dollars. [b] Some short-term projects will be completed after 2015.

Note: In addition to the recommended projects identified in this list, existing roadways that are currently not constructed to urban standards may need to be upgraded during the time covered by the LRTP (through 2025). Road upgrade projects typically result in the same number of lanes for the road. Improvements may also include sidewalks, pathways, and accommodations that comply with requirements of the Americans with Disabilities Act.

Source: CH2M HILL

The highlighting identifies text revised. See the Revisions chapter at the end of the book.

Table 8-2. Recommended Pedestrian and Trail Projects—Improvements Associated with Recommended Road Projects

Project Number	Facility Name	From	To	Sidewalk Miles	Separated Pathway Miles
202	C St. Extension Phase III	O'Malley Rd.	Dimond Blvd.	1.5	1.5
203	Fireweed Ln. Surface Rehab.	Spenard Rd.	Seward Hwy.	1.25	1.25
204	DeArmoun Rd. Reconstruction Phase II	140th Ave.	Hillside Dr.	2.4	2.4
206	Victor Rd.	100th Ave.	Dimond Blvd.	0.5	0.5
209	Glenn Hwy.	Ingra St./Gamble St.	McCarrey St.	2.4	2.4
210	Minnesota/C St. Interchange	C St.	C St.	0.6	0.6
211	Creekside Town Center Couplet	DeBarr Rd. at Creekside	DeBarr Rd. at Muldoon	0.9	0.9
213	Abbott Loop Extension	Abbott Rd.	E. 48th Ave.	1.05	1.05
214	Northern Lights Blvd.	Nathaniel Ct.	Wisconsin Ave.	0.5	0.5
215	3rd Ave. Surface Rehab.	Post Rd.	Reeve Blvd.	1.5	0
216	Hartzell Rd. Extension	Lore Rd.	79th Ave.	0.2	0.2
217	Independence Dr. Extension	Abbott Rd.	O'Malley Rd.	0.4	0.4
221	Raspberry Rd. Extension	Rovenna St.	Arctic Blvd.	0.5	0.5
226	40th Ave. Extension	Lake Otis Pkwy.	Piper St.	2.0	NA
301	International Airport Rd. Extension	Old Seward Hwy.	Brayton	0.7	0
302	Seward Hwy./O'Malley Rd. Interchange	Old Seward Hwy.	Seward Hwy.	3.9	3.9
303	Seward Hwy.	O'Malley Rd.	36th Ave.	4.5	4.5
304	68th Ave. Extension	Homer Dr.	Brayton Dr.	0.6	0
305	76th Ave. Extension	Homer Dr.	Brayton Dr.	0.2	0
306	92nd Ave. Extension	Homer Dr.	Brayton Dr.	0.2	0
308	Dowling Rd. Extension	Raspberry Rd.	Old Seward Hwy.	1.65	1.65
309	Glenn Hwy. Corridor Improvements	Ingra St./Gamble St.	McCarrey St.	0.3	0.3
311	Seward Hwy.	O'Malley Rd.	Rabbit Creek Rd.	3	3
401	O'Malley Rd.	Seward Hwy.	Hillside Dr.	3.65	3.65
404	Old Seward Hwy.	Brandon St.	O'Malley Rd.	1.5	1.5

Table 8-2. Recommended Pedestrian and Trail Projects—Improvements Associated with Recommended Road Projects

Project Number	Facility Name	From	To	Sidewalk Miles	Separated Pathway Miles
406	Spenard Rd. Surface Rehab.	Minnesota Rd.	Minnesota Rd. Onramp	0.15	0.15
407	Huffman Rd.	Old Seward Hwy.	Lake Otis Pkwy.	1	1
409	Abbott Rd.	Lake Otis Pkwy.	Birch Rd.	2	2
415	Lake Otis Pkwy.	Northern Lights Blvd.	DeBarr Rd.	0.85	0.85
416	Dowling Rd. Extension	Laurel St.	Abbott Lp. Rd.	0.9	0.9
417	Northwood Dr. Extension	88th Ave.	Dimond Blvd.	1	8.9
418	100th Ave. Extension	Minnesota Dr.	King St.	0.95	0.95
419	Muldoon Rd. Improvements	Tudor Rd.	Glenn Hwy.	3.55	3.55
501	Whitney Rd.	North C St.	Post Rd.	1.05	1.05
502	Ingra-Gambell Extension	3rd Ave.	Whitney Rd.	0.6	0.6
506	Seward Hwy.	Potter Weigh Station	Rabbit Creek Rd.	2.65	2.65
507	Jewel Lake Rd.	Dimond Blvd.	International Airport Rd.	2.9	2.9
510	Minnesota Dr. (Northbound)	26th Ave.	16th Ave.	0.7	0.7
603	Glenn Hwy./Seward Hwy. Connection	Glenn Hwy./McCarrey St.	Seward Hwy. (36th)	4.9	4.9
604	48th Ave./Boniface Pkwy. Extension	48th Ave./Bragaw Rd.	Boniface Pkwy./Tudor Rd.	1.2	1.2
618	40th Ave. Extension	Arctic Blvd.	Eureka St.	0.4	0.4
621	Minnesota Dr. East side Frontage Road	Dimond Blvd.	Raspberry Rd.	3.1	3.1
627	Minnesota Dr. Corridor	International Airport Rd.	Northern Lights Blvd.	3.2	NA
628	92nd Ave./Academy Dr. Extension	Brayton Dr.	Abbott Rd.	0.45	0.45
632	Lake Otis Pkwy. Extension	DeBarr Rd.	Airport Heights Rd.	0.7	NA
633	Boniface Pkwy. Access Management	Tudor Rd.	Glenn Hwy.	3.1	NA
702	Elmore Rd. Extension	Rabbit Creek Rd.	DeArmoun Rd.	2	NA
705	Tudor Rd. Access Management	Seward Hwy.	Arctic Blvd.	1.25	1.25
706	Tudor Rd. Access Management	Seward Hwy.	Patterson St.	3.7	3.7
707	Glenn Hwy. at Eagle River	Hiland Rd.	Artillery Rd.	NA	4

Table 8-2. Recommended Pedestrian and Trail Projects—Improvements Associated with Recommended Road Projects

Project Number	Facility Name	From	To	Sidewalk Miles	Separated Pathway Miles
708	Rabbit Creek Rd.	Seward Hwy.	Goldenview Dr.	1	1
801	92nd Ave.	King St.	Seward Hwy.	1.5	NA
802	84th Ave.	Hartzell Rd.	Lake Otis Pkwy.	1.0	NA
803	Oilwell Road	north of Muldoon Rd. interchange	Elmendorf Air Force Base Access Gate	1.0	NA
			Total Miles	**82.7**	**76.9**

NA = Not applicable

Source: CH2M HILL

CHAPTER 9. Funding

Introduction

Funding for implementation of the recommended LRTP comes from federal, state, and local sources. This financial element of the LRTP includes estimates of costs that would be required to implement the LRTP as well as estimates of existing and contemplated sources of funds available to pay for these improvements.

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) planning regulations for metropolitan areas stipulate that all LRTPs must include a financial plan that demonstrates the consistency of proposed transportation investments with available and projected sources of revenue. The LRTP identifies multimodal improvement, pavement preservation, and enhancement needs for the next 20 years.

The cost to implement all elements of the recommended LRTP over the next 20 years and to maintain and operate the transportation system is more than $3.7 billion, as shown in Table 9--1.

All tables in this chapter reflect planning-level cost estimates for use in demonstrating funding constraints, according to FHWA guidance. All funding is subject to federal, state, and local appropriation.

Table 9-1. Recommended Plan Cost

Item	Cost ($)[a]
Roads	
National Highway System	1,281
Non-National Highway System	741
Pavement preservation	188
Operation and maintenance	676
Transit	
Capital	107
Operating	390
Railroad grade separations	130
Enhancements	87
Non-motorized trails/walkways	
Maintenance	12
Congestion management	114
Planning, studies, and coordination	6
Total	**3,732**

[a] All costs are in millions of 2004 dollars.

Source: CH2M HILL

Projected revenue from identifiable sources totals $3.7 billion. See Table 9-2.

Revenues appear adequate to implement all elements of the LRTP. The following paragraphs discuss each element of the funding plan.

Roadway Capital Costs and Estimated Revenues

Roadway capital projects are divided into two categories: National Highway System (NHS) projects and non-NHS projects. This distinction is important because some federal funds are specifically designated only for use on the NHS.

The cost of implementing NHS roadway improvement recommendations contained in the Anchorage Bowl and Chugiak-Eagle River LRTPs will be approximately $1.3 billion. See Table 9-3. Other NHS-related expenditures include pavement rehabilitation, rut repair, and preservation; they are expected to cost an additional $76 million. Federal revenues designated for the NHS, federal earmarks, and state bonding and capital program sources projected to be available to pay for NHS improvements are about $811 million. The balance of $546 million can be covered by a portion of available non-NHS revenues.

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Table 9-2. Projected Plan Revenue Sources

Item	Revenue ($)[a]
Federal funding	
Federal Highway Administration	1,450
Federal Transit Administration	140
Legislative transportation earmarks	160
Other federal programs	50
Railroad grade separation earmarks	130
State	
General revenue federal match	119
Capital program	376
Operations and maintenance	219
Municipality of Anchorage	
Road bonds and federal match	265
General fund—road and trail maintenance	469
General fund—public transportation operation	358
Transit capital	26
Non-motorized capital	15
Total	**3,777**

[a] All revenues are in millions of 2004 dollars. Revenue projections are based on historical data from the DOT&PF and MOA.

Source: CH2M HILL

Table 9-3. Comparison of Costs and Revenues Available to Implement National Highway System LRTP Projects

Item	Cost ($)[a]
Roadway improvements (LRTP projects only)	1,341
Roadway pavement preservation	76
Total Cost	**1,417**
NHS revenues available	
FHWA designated NHS funds	421
State match funds	42
Federal earmarks	160
State capital program	188
Non-NHS revenues available (see Table 9-4)	606
Total Revenue	**$1,417**

[a] All costs and revenues are in millions of 2004 dollars.

Source: CH2M HILL

Table 9-4 shows similar cost-revenue results for the non-NHS portion of the LRTP. Non-NHS revenue sources can be used more flexibly than NHS funding. Major program elements for the non-NHS funding include roadway improvements and rehabilitation projects; pavement preservation; the safety improvement program; enhancement program; congestion mitigation and air quality (CMAQ) program; and planning, studies, and coordination. Table 9-4 shows estimated expenditures for each category of the non-NHS program. The amount of money spent on CMAQ projects has been increasing during the past few years (rising from $4.7 million in 2001 to $6.01 million in 2004).

Table 9-4. Comparison of Costs and Revenues Available to Implement Non-National Highway System LRTP Projects

Item	Cost ($)[a]
Roadway improvements (Anchorage Bowl LRTP)	554
Roadway improvements (Chugiak-Eagle River LRTP)	91
Roadway pavement preservation	108
Roadway safety projects	35
Enhancements	87
CMAQ	79
Planning, studies, and coordination	6
Total Cost	**960**
Total FHWA revenues	1,029
Total state and local match revenues	103
State capital program	188
MOA road bonds	239
MOA non-motorized capital	15
Other federal programs	40
Total Revenue	**1,614**
Non-NHS revenues available for NHS or other projects	654

[a] All costs and revenues are in millions of 2004 dollars.

Source: CH2M HILL

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

The estimated expenditures for the non-NHS portion of the LRTP program total $960 million. Revenues from all sources (federal, state, and local) available to fund these needs are estimated to be about $1.6 billion. A portion of the non-NHS revenues, $546 million, is applied toward funding the NHS program described above.

GARVEE Bonds

The MOA and the State of Alaska obtained voter approval in the fall of 2002 to fund a package of statewide priority projects with Grant Anticipation Revenue Vehicle (GARVEE) bonds.

GARVEE bonds allow the State of Alaska to bond for road projects in the short term while paying them back with future federal highway funds receipts. The only AMATS project included in the approved bond issue was the C Street extension between Dimond Boulevard and O'Malley Road in the amount of $36.1 million. GARVEE bonding represents no increase in funding amount; it is simply a transfer mechanism to facilitate earlier scheduling of certain projects.

State General Obligation Bonds and Capital Program

Alaska voters approved a package of statewide general obligation bonds in the fall of 2002. That vote marked the first time in Alaska history that state general obligation bonds were approved for road projects. The bond package identified $37.5 million for the Abbott Loop Road Extension project. More recently the state Capital Program has included $56.5 million funding for other projects in Anchorage. On the basis of these recent funding initiatives, the 20-year LRTP program estimates $376 million will be available from state capital program and bond sources. State capital program and bond funds are assumed to be split equally between NHS and non-NHS improvements.

Transit Operating and Capital Costs and Estimated Funding

The recommended LRTP expands existing public transportation services and AnchorRIDES services for disabled and elderly persons. It also introduces new express bus service in the Glenn Highway corridor. The required bus fleet will be approximately 90 buses plus an AnchorRIDES paratransit fleet of about 54 units. The MOA is currently utilizing FHWA CMAQ funds to expand transit service and meet some capital improvement needs. Transit capital costs are projected to be $107 million. Available capital funding from federal and municipal sources is sufficient to cover the $107 million. See Table 9-5.

Most of the operating budget for public transportation services is derived from local property taxes. Some of the cost to operate public transportation services is offset by fares collected from passengers and miscellaneous advertising income. Additionally, some costs are covered by federal transit funding, other federal agency programs, and CMAQ monies from FHWA. The remainder is derived from MOA general budget funds. In 2004, public transportation funding support of $13.22 million was provided from the MOA general budget; for 2005, the MOA general fund is budgeted to provide $13.37 million net support for transit.

The public transportation net operating costs through 2025 will be $390 million, after deducting passenger fares and miscellaneous operating revenue for the recommended bus and paratransit services. The revenue projection for public transit utilizes FTA, MOA general fund, transit capital funds, CMAQ, and other federal agency funds. Funding for the expanded bus system operations will require increased MOA general fund allocations or new sources.

Table 9-5. Transit Operation and Capital Funding

Item	Cost ($)[a]
Operations	
Net operating cost of recommended LRTP transit services	390
MOA funds for transit operations	307
CMAQ funds for transit operations	19
Other Federal funds for operations	64
Total funds for transit operations	**390**
Capital	
Total capital cost of recommended LRTP transit services	107
FTA Section 5307 grant funds	85
MOA transit capital	22
Total transit capital funds	**107**

[a] All costs and revenues are in millions of 2004 dollars.

Source: CH2M HILL

Funding from property taxes depends on the willingness of the Municipal Assembly and the Administration to allocate money for this purpose and on support of the general public. Many other public transportation systems receive allocations from other funding sources (such as a percentage of sales tax, gasoline tax, or vehicle registration tax).

Earmarks and Other Federal Funding

Congressional transportation earmarks are a special category of revenues that cuts across all categories of transportation projects. The MOA was recipient of some earmark projects and one High Priority project from the Transportation Equity Act for the 21st Century (TEA-21) funds. Almost $11 million was earmarked in TEA-21 for the Ship Creek Access project. Some of this money has subsequently been diverted, through federal legislation, to other projects. ARRC also has received earmark money under FTA Section 5309 and anticipates additional earmarks in the future. Work on the environmental documentation for the Knik Arm crossing project is being carried out with earmarked monies.

Another earmark project example is the Ship Creek Intermodal Facility, which will develop a transportation hub (bus, rail, parking, and pedestrian facilities) in the Ship Creek area. In recent 6-year federal transportation reauthorization legislation cycles, from $9 billion to $11 billion has been designated by Congress for earmark project funding. The LRTP program estimates funding of $160 million will be derived from earmarks (not including Knik Arm Crossing earmark funds).

In addition to the federal transportation funding allocations made by the FHWA and FTA to states and urban areas, both administrations have other discretionary funding programs that are awarded on a competitive basis. Other federal agencies, such as the U.S. Environmental Protection Agency, Energy, and Health and Human Services, have various programs that also may be tapped for transportation funding. The LRTP program estimates $50 million in funding will be derived from these supplemental sources.

Railroad Grade Separation Funds

Revenue to fund major railroad grade separations is estimated to come from federal earmarks or other specially designated funding sources. The total amount for this purpose is $130 million.

Summary of LRTP Costs and Application of Revenues

Table 9-6 summarizes costs for the recommended LRTP and the allocation of available revenues to fund implementation.

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Table 9-6. LRTP Cost and Revenue Allocation Summary, 2005–2025
All costs and revenues are shown in 2004 millions of dollars

Capital Cost Items	Cost ($)	Revenue Sources	Revenue ($)
National Highway System			
Roadway improvements on National Highway System for this LRTP	1,281	FHWA	421
Pavement preservation	76	State match	42
		Earmarks	160
		State capital program	188
		Non-National Highway System transferred dollars	546
Total	**1,357**		**1,357**
Non-National Highway System			
Roadway improvements on non-National Highway System for this LRTP	650	FHWA	1,029
Non-National Highway System pavement preservation	112	State & local match	103
Chugiak-Eagle River non-National Highway System road improvements	91	MOA road bonds	239
Highway Safety Improvement Program	35	MOA non-motorized capital	15
Spot improvements ($30.0), traffic calming ($4.0), safe school routes ($1.4)			
Enhancements	87	State capital program	188
Pedestrian and bicycle non-road projects ($68.0), aesthetics ($19.4)			
CMAQ program costs	79	Other federal funds	40
Signal timing and upgrades ($17.2), ITS including CVISN ($9.0), travel demand management ($17.6), transit capital and operations ($19.4), various control measure programs ($15.5)			
Planning, studies, and coordination	6		
Total	**1,060**		**1,614**
		Available for NHS and other programs	554
Transit			
Transit capital	**107**	Transit capital	**107**
Buses ($67.3), other capital ($32.1), vans and van IT ($7.3)		FTA ($85.3), MOA transit capital ($21.3), CMAQ ($0)	
Roadway/Railroad Grade Separations			
Roadway/railroad grade separations	**130**	Railroad earmarks	**130**
Total Capital Costs	**2,654**	**Total Revenue Sources**	**2,662**

Table 9-6. LRTP Cost and Revenue Allocation Summary, 2005–2025

All costs and revenues are shown in 2004 millions of dollars

Operation and Maintenance Cost Items	Cost ($)	Revenue Sources	Revenue ($)
Roadways	676	State funds	219
		MOA general budget funds	457
Non-motorized (trails)	12	MOA general budget funds	12
Transit operations	390	Transit operations	390
People Mover ($320.7), Glenn Highway express bus service ($7.9), AnchorRIDES ($61.1)		MOA general budget and new source ($306.2),), FTA demonstration grant—Glenn Highway express bus service deployment ($15.4), CMAQ ($19.4), FTA ($38.9),other federal funds ($9.9)	
Total Operations and Maintenance Costs	**1,078**	**Total Revenue Sources**	**1,078**

Source: CH2M HILL

Roadway Operations and Maintenance

Adequate funding of street operation and maintenance functions is important to ensure that the road system continues to function well. The operation and maintenance functions include activities such as signing, marking, lighting, street sweeping, traffic signal system operation, snow clearing, sanding, pothole repair, landscaping, and sidewalk maintenance.

The State of Alaska and the MOA jointly share the responsibility of maintaining roadways in the Anchorage Bowl. For the most part, the MOA maintains municipality-owned roads and the State of Alaska maintains state-owned roads. However, in cases where efficiencies can be achieved, the maintenance responsibilities have been shifted through formal maintenance agreements. The State of Alaska contracts with the MOA for certain operations and maintenance functions.

The State of Alaska and the MOA spent almost $31 million in 2004 for operations and maintenance of the public road system in the Anchorage Bowl and the Chugiak-Eagle River area. (See Table 9-7.) New roads and lanes to be built as a part of the LRTP implementation will add maintenance cost of about $1.6 million per year. During the 2005–2025 LRTP period, operation and maintenance costs for the road system are projected to be $676 million.

State and local maintenance budgets have traditionally been very tight. As a result, there is a tendency to defer needed roadway upkeep because of lack of funds. The state legislature appropriates money for State of Alaska highway maintenance out of the general fund. Whether the road maintenance needs will be adequately funded depends on the priority given this function by the Legislature.

Deferring maintenance has a hidden price. Preventative maintenance programs, such as crack sealing, can substantially prolong the life of a roadway, reducing the frequency and total cost of rehabilitation projects.

A factor driving up the cost of roadway maintenance is pavement rutting caused by studded snow tires. The 2004-2006 Transportation Improvement Program (TIP) indicates that roadway-rutting problems will cost approximately $25.1 million to rehabilitate during the 3-year period. Under a recently adopted State of Alaska new tax on tires, motorists pay $2.50 tax per tire sold in Alaska and pay $5.00 for tires with studs. The Alaska Department of Revenue estimates the measure will raise about $3.2 million per year for road repair and maintenance.

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Table 9-7. Annual Highway Operation and Maintenance Funding

Item	Cost ($)[a]
2004 annual roadway operations and maintenance cost (local)	21.4
2004 roadway operations and maintenance cost (state)	9.6
Total 2004 roadway operations and maintenance costs	31.0
Annual additional roadway operations and maintenance cost with full LRTP implementation	1.65
2005-2025 roadway operations and maintenance cost with LRTP implementation	676.2

[a] All costs are in millions of 2004 dollars.

Costs include traffic engineering operations and roadway operations and maintenance, excluding drainage system maintenance.

MOA and DOT&PF costs have been adjusted for intergovernmental subcontracts.

Sources: MOA 2005 Approved Operating Budget, MOA Street Operations and Maintenance Department, DOT&PF Central Region Operations and Maintenance, and CH2M HILL

Non-motorized (Trails and Walkways) Maintenance Costs

Estimated maintenance costs for trails and walkways are derived from operations and maintenance department accounts and information from Chugiak-Eagle River Parks, Recreation and Community Development. The existing (2004) budget for trail and walkway maintenance was identified as a baseline. The cost of maintaining new trails and walkways in the LRTP was derived by applying unit costs per mile from current cost information. Total 2005–2025 maintenance costs for trails and walkways are projected to be $11.94 million.

Table 9-8. Trail and Walkway Maintenance Funding

Item	Amount ($)[a]
2004 annual trail/walkway maintenance cost	0.49
Additional annual maintenance cost for new LRTP trails/walkways	0.15
Total annual trail/walkway maintenance cost with full LRTP implementation	0.64
2005-2025 trail/walkway maintenance cost with LRTP implementation	11.94

[a] All costs and revenues are in millions of 2004 dollars.

Sources: MOA and CH2M HILL

Alaska Railroad Capital and Operating Costs and Estimated Revenues

Capital funding for selected Alaska Railroad Corporation (ARRC) improvements is estimated to originate from the FTA and the Federal Railroad Administration (FRA). The operation and maintenance of capital facilities is the responsibility of the ARRC. The railroad reports systemwide operating, capital, and funding sources for purposes of the National Transit Database. FTA formula programs (Urbanized Area Formula funds and Fixed Guideway Modernization funds) are calculated on passenger revenue vehicle miles and rail route miles. Table 9-9 shows ARRC capital and operation costs and revenues.

Table 9-9. Alaska Railroad Corporation Capital and Operation Funding

Item	Cost ($)	
	Estimate, Annual	20-Year LRTP[a]
Operations		
Total cost of operating system	15	300
Existing passenger budget	16	320
Additional operations cost	1	(20)
New passenger and other revenues from expanded fleet	0.75	15
New source of revenues needed to operate expanded fleet	0.25	(5)
Capital		
Total capital cost of system	10	200
FTA Section 5307 grant funding	6	120
FTA Section 5309 earmarks and other grants	1	30
FRA funding	1	30
Alaska Railroad Corporation internally generated capital applied to transit operations	1	20
Total annual revenues to finance capital costs	10	200

[a] All costs and revenues are in millions of 2004 dollars.

Source: Alaska Railroad Corporation

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Conclusion

Transportation system infrastructure development, improvements, rehabilitation, and preservation are costly endeavors. The recommended transportation plan outlined in Chapter 8 will cost $2.6 billion in 2004 dollars for capital items and $1.08 billion in 2004 dollars for operation and maintenance items.

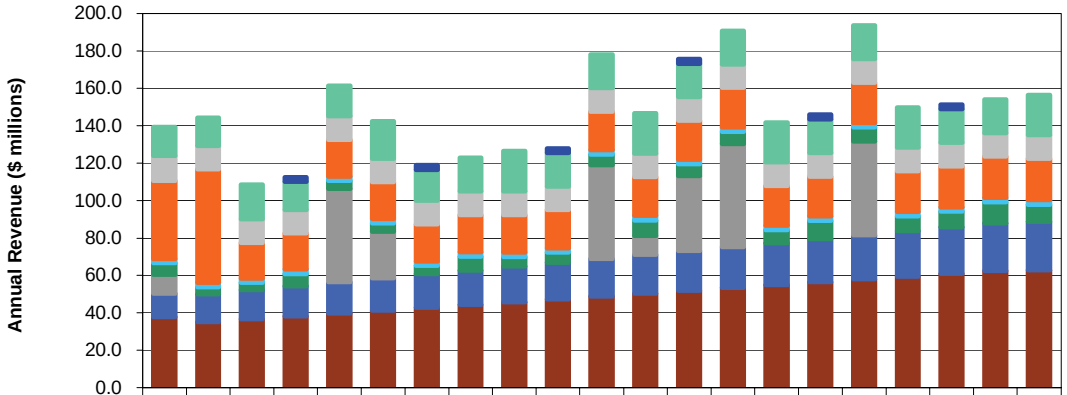
It is worth noting that the costs referenced above are public investments to build and preserve transportation infrastructure. Figure 9-1 depicts the annual revenues by funding source that will be required to implement the LRTP. Ongoing costs to operate and maintain the transportation system are borne by the MOA and the State of Alaska from annual operating budgets.

There is another page to the transportation expenditures story—the amounts spent by individual households on personal transportation from their disposable incomes. U.S. Bureau of Labor Statistics consumer expenditure surveys reveal that an average Anchorage household spent $10,795 in 2003 on transportation (for expenses such as vehicles, operation, fuel, insurance, public transportation, and vacation travel). That works out to nearly $1 billion per year collectively for all households in Anchorage. During the 20-year LRTP time span, with more households added, these cumulative personal transportation expenditures will exceed $23 billion.

There is yet a third transportation cost perspective—that of not doing enough. Congestion has grown dramatically across North America during the past 20 years. In 2003, the nation's annual cost of congestion was estimated to be a staggering $63.1 billion (reported in *The 2005 Urban Mobility Report*, by David Schrank and Tim Lomax, for the Texas Transportation Institute, May 2005). Anchorage has fared far better than larger metropolitan areas or most of their smaller urban area peers. But the analysis presented in this LRTP about anticipated growth to 2025 indicates a more challenging environment. More people, increasing travel demand, and suburban spreading will exert more pressure on the MOA transportation system capacity.

In the absence of significant transportation system investments, travel mobility will be markedly degraded—and consumer costs will rise further. There is a clear *Call for Action*—to live up to the vision of Anchorage 2020 and to preserve qualities that distinguish Anchorage's way of life.

Figure 9-1. LRTP Revenue by Source



Year:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
MOA Non-motorized	$0.0	$0.0	$0.0	$2.5	$0.0	$0.0	$2.5	$0.0	$0.0	$2.5	$0.0	$0.0	$2.5	$0.0	$0.0	$2.5	$0.0	$0.0	$2.5	$0.0	$0.0
MOA Transit Capital & Operating	$15.3	$14.9	$18.4	$14.9	$16.4	$19.9	$16.4	$17.9	$21.4	$17.9	$17.9	$21.4	$17.9	$17.9	$21.4	$17.9	$17.9	$21.4	$17.9	$17.9	$21.4
MOA Road Capital	$13.3	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6	$12.6
ADOT&PF + AK Capital Program	$41.6	$60.6	$19.1	$19.3	$19.5	$19.7	$19.8	$20.0	$20.2	$20.3	$20.5	$20.7	$20.9	$21.0	$21.2	$21.4	$21.6	$21.7	$21.9	$22.1	$22.1
Federal Other	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4
Federal Transit	$6.4	$3.7	$3.8	$6.5	$4.2	$4.4	$4.7	$7.4	$5.1	$5.4	$5.7	$8.4	$6.2	$6.6	$6.9	$9.7	$7.6	$8.0	$8.4	$11.3	$9.2
Federal Earmarks	$10.0	$0.0	$0.0	$0.0	$50.0	$25.0	$0.0	$0.0	$0.0	$0.0	$50.0	$10.0	$40.0	$55.0	$0.0	$0.0	$50.0	$0.0	$0.0	$0.0	$0.0
FHWA NHS	$12.4	$14.9	$15.5	$16.1	$16.6	$17.2	$17.8	$18.4	$19.0	$19.6	$20.1	$20.7	$21.3	$21.9	$22.5	$23.1	$23.6	$24.2	$24.8	$25.4	$26.0
FHWA Non-NHS	$37.9	$35.2	$36.7	$38.2	$39.7	$41.3	$42.8	$44.3	$45.8	$47.3	$48.8	$50.4	$51.9	$53.4	$54.9	$56.4	$58.0	$59.5	$61.0	$62.5	$62.7

Source: CH2M HILL

CHAPTER 10. Implementation Plan

Introduction

This LRTP reinforces and sustains the economic health, livability, and attractiveness of Anchorage as a northern city and gateway to Alaska. The recommendations promote transportation choices and call for reducing and managing demand for automobile travel. The LRTP is guided by the Anchorage 2020 comprehensive plan with additional housing placed in the downtown area. MOA land use and transportation planners worked closely in developing the land use allocation details that underpin the LRTP.

Implementation of the LRTP recommendations will be contingent on many factors, some of which cannot now be foreseen. But the LRTP can be accomplished with strong political leadership, close collaboration among government jurisdictions, broad public support, and commitments to funding. The nature of the future transportation system can be influenced by policy recommendations. To shift the transportation network from where we are now to where we want to be in 2025, policy items and action recommendations need to be addressed.

Steady and continuous focus and effort are mandatory. Regular reassessment of progress, system performance, and traffic congestion will aid in prioritizing implementation actions.

Policy recommendations, action items, or both are identified for the issues and transportation elements below.

Anchorage 2020, Land Use, and Title 21

Policy Recommendations

- Continue to pursue the goals of Anchorage 2020; complete the Land Use Map, which details the land use changes; and shape Title 21 land-use codes to implement the development standards and densities envisioned in Anchorage 2020
- Continue to pursue development of subarea plans that bring further definition to development of neighborhoods and employment areas and inform future updates to the LRTP and land-use decisions
- Continue database maintenance and use of the Anchorage travel model as a tool for forecasting—to allocate land use, estimate trip generators and attractors, and project travel patterns—and for measuring transportation system performance
- Monitor findings from the Knik Arm crossing project and its impacts to Anchorage 2020 goals and future transportation needs
- Incorporate parking requirements in Title 21 and employment center plans that avoid too-large parking lots and parking management to encourage strategies for single-occupancy vehicle (SOV) reduction
- Update the Anchorage 2020 comprehensive plan to reference an Anchorage Non-motorized Transportation Plan that replaces the Areawide Trails Plan (MOA, 1997) and includes all forms of non-motorized transportation (paved and non-paved trails, sidewalks, Americans with Disabilities Act [ADA] amenities, and bike lanes)
- Explore utilization of congestion mitigation and air quality (CMAQ) funding to encourage smart growth and livable communities
- Base new parking standards on best available information about the parking required for various land uses
- Promote the development of policies and ordinances that guide future location and phasing of high-traffic land uses

The highlighting identifies text revised in the 2027 LRTP. See the Revisions chapter at the end of the book.

Financial Issues

Policy Recommendations

- Seek a broader base of transportation funding to better align equity between beneficiaries and those who bear the costs; for example, increases in the gas tax, higher vehicle license and registration fees, or a dedicated sales tax to provide revenues
- Examine ways to reduce the cost and resources required to develop funding for MOA road improvements. Consider possible mechanisms such as multi-year bonding or multi-year tax propositions with sunset provisions.
- Aggressively pursue federal discretionary grant funding from all federal departments and agencies that is applicable to the MOA and AMATS programs, and advocate for equitable shares of formula-allocated transportation funds
- Investigate funding opportunities under new initiatives in SAFETEA-LU (Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users), such as value pricing, safe routes to school program, set-asides for protective devices at roadway crossings of railroads, and the transportation and community and system preservation program
- Undertake innovative experiments by using value pricing and cash incentives for travel-mode-change strategies and assess their value
- Provide MOA staffing levels and resources to plan, operate, monitor, manage, and maintain the transportation system and improvement programs

Action Item Recommendations

1. Identify, pursue, and establish funding mechanisms to provide adequate, predictable, long-term funding for transit operations and LRTP implementation
2. Continue regional collaboration on projects, priorities, resources, and strategies mutually affecting Anchorage and the Mat-Su Borough
3. Identify and fund staff resources to pursue discretionary funding programs available from federal agencies such as Federal Highway Administration (FHWA), U.S. Environmental Protection Agency, Energy, and Health and Human Services
4. Increase funding for maintenance, infrastructure preservation, and snow clearance for roads and for walking paths in vicinity of bus stops, schools, and other areas where pedestrian movements are necessary
5. Examine options such as user fees to provide funding for trail maintenance, preservation, and sweeping
6. Develop the Chugiak/Eagle River LRTP jointly with the Anchorage Bowl LRTP

Public Involvement

Policy Recommendations

- Invite the public to an annual transportation fair to provide information about funding priorities and projects sponsored by the AMATS, MOA, People Mover, Alaska Railroad Corporation, Ted Steven Anchorage International Airport, and Port of Anchorage and advanced by freight movement initiatives and the Congestion Management Program
- Establish public involvement processes that provide information about transportation issues, projects, and processes to citizens, businesses, and other stakeholders, and that solicit and consider feedback when making decisions about transportation. It is especially important to provide outreach to traditionally underserved citizens and residential areas.
- Coordinate between the MOA and DOT&PF to design a database to capture public comments on projects and programs
- Develop and implement a policy or best practice guide applying context-sensitive solutions to the design process

Roads

Policy Recommendations

- Promote inter-departmental collaboration and develop a best practice guide that provides direction for street design criteria planning, including associated features that develop attractive and functional streets such as sidewalks, bus stops, lighting, and other related features and a street's function as part of a system
- Provide timely direction to site and land developers on requirements for supporting transportation-related facilities and services
- Incorporate design standards of streets and related elements (landscaping, sidewalks, setbacks, aesthetic treatments, and noise barriers) into updates of MOA plans, standards, and ordinances

- Provide descriptions and examples of context-sensitive solutions and street typologies to implement a process for the community to enhance the area streetscape and reduce associated negative impacts
- Implement project plans as approved to include designated pedestrian, bicycle, and trail facilities. Extend new facilities to connect to adjacent trails and sidewalks.
- Implement Title 21 code revisions and a subdivision platting process to increase local street connectivity
- Update the Official Streets and Highway Plan (OS&HP) to reflect functional classification changes recommended in this LRTP
- Reflect the LRTP, Title 21, and Anchorage 2020 in continued updates to the MOA *Design Criteria Manual*
- Continue to coordinate State of Alaska, local road service area, and MOA maintenance responsibilities on streets within AMATS boundaries
- Conduct periodic (3-year cycle) systemwide review of traffic conditions and system performance by using updated traffic data (See action items.)
- Before considering the addition of roadway capacity for single-occupant vehicles, conduct a congestion management system analysis according to procedures presented in Appendix D

Action Item Recommendations

1. Collect new traffic data, including volume and travel time when roadway construction is completed and new traffic patterns are established
2. Complete the signal timing update currently in progress and implement corridor coordination
3. Incorporate sidewalk, pathway, and trailhead facilities shown on the MOA Areawide Trails Plan in roadway project plans
4. Update the OS&HP
5. Complete subarea traffic studies in key areas such as east of Seward Highway at Dimond Boulevard, Abbott Road, and Sandlewood Place

Transit—Public Transportation

Policy Recommendations

- Develop strategy and funding commitment to assure continuity in timely completion of the Route Restructuring Plan (*The People Mover Blueprint: A Plan to Restructure the Anchorage Transit System,* RLS and Associates Inc., 2002) and purchase of required fleet vehicles in 2007–2008
- Establish a "Blue Ribbon Task Force" to examine best practices and formulate a strategy and program to establish long-term, predictable transit funding
- Translate Anchorage 2020 "transit first" advocacy into practice and policy guidelines for municipal operations
- Make consideration of public transportation explicit in land use planning, development, and public works programs, a focus that is especially important for public services

Photo courtesy of MOA IT/GIS Division

- Foster community support for building and maintaining a strong, viable Anchorage transit system
- Create institutional and public-private partnerships to collaborate in funding special transportation services for elderly and transportation-disadvantaged persons
- Set additional commuter ridership goals for significant commuter ridership increases into the three major employment areas during development of future plans. (This LRTP calls for a doubling [at minimum] of transit ridership during the next 20 years, as well as achieving a 5 to 6 percent share of traffic along the Glenn Highway corridor as transit.)

Action Item Recommendations

1. Implement remaining parts of the Route Restructuring Plan by 2007–2008

2. Develop steps and programs to implement the recommended LRTP transit plan in Chapter 8

3. Develop long-range sustainable funding for the public transportation system

4. Continue and refine route-by-route operational analyses to fine-tune service and build riders. Establish performance benchmarks and monitor progress.

5. Continue partnerships with schools, universities, government agencies, and employers to market transit and achieve ridership goals

6. Coordinate road, bike, and pedestrian improvements with transit improvements to increase transit accessibility

7. Coordinate planning and development for transit corridors and transit center locations

8. Continue coordination of transit services among transportation service providers in the region

9. Promote transit services partnerships with major employers (such as incentives, commuter tax benefits, and bus passes rather than free parking) to increase transit use

10. Actively participate in regional discussions and forums about regional public transportation services

11. Strive to improve transit efficiency that meets the needs of schools as well as of residents citywide

12. Promote carpool, vanpool, and other public transportation

13. Promote the development of a public transportation system that serves the Glenn Highway corridor as an alternative to the single-occupancy vehicle

Pedestrian and Bicycle System

Policy Recommendations

- As part of the Areawide Trails Plan update (newly named the Anchorage Non-motorized Transportation Plan), improve the quality of the pedestrian environment by creating flexible pedestrian design guidelines to ensure that all construction in rights-of-way meet the needs of pedestrians in those locations.
- Create a sustainable process to analyze locations with high incidence of pedestrian collisions and implementation of special designs to inform the Pedestrian Plan
- Create an Anchorage Non-motorized Transportation Plan (focusing on paved and non-paved trails, sidewalks, ADA amenities, and bicycle lanes); review commercial and retail access and platting; advocate for bicycle lane adoption into designs and retrofits of roads in locations identified in the Commuter Bike Lane Plan; and increase regional coordination and education
- From the priorities set forth in the Pedestrian Plan (a new plan recommended in this LRTP): (1) implement an aggressive program to retrofit sidewalk installation on all arterials and collectors with priorities given to school walking zones, transit corridors, and employment centers; (2) implement priority pedestrian safety crossing projects for neighborhood and community connectivity with schools, transit stop crossings, employment centers, and retail areas; and (3) set pedestrian and bicycle safety priorities by using available crash data
- As part of the update of the Areawide Trails Plan (Anchorage Non-motorized Transportation Plan), implement a commuter bicycle study to improve the quality of the bicycle environment by increasing safety in bicycle lanes, creating connectivity of multi-use trails, and educating the public about bicycle ordinances
- Coordinate design guidelines and checklists for pedestrian plan streetscapes with street design standards for sidewalks, trails, landscape, signage, lighting, and traffic calming
- Preserve existing platted easements for trails and establish new platted easements in subdivisions for access to schools, regional parks,

recreational facilities, employment centers, and institutional and governmental facilities

- Encourage expansion of the downtown Business Improvement District concept to other Anchorage 2020 policy areas with the goal to enhance maintenance and preservation of non-motorized transportation infrastructure

- Establish as a priority the acquisition of sufficient right-of-way to allow for adequate separation of sidewalks or pathways from the curb were practicable

Action Item Recommendations

1. Create a sidewalk improvement program and priorities targeted to improving safety and access to needed services and destinations (bus stops, schools, shopping, employment, and health facilities). This project should expand and fill missing portions in the sidewalk network, focusing on high-priority links (near schools and transit services) to meet ADA standards and remove obstructions

2. Promote an educational awareness program for drivers, bicyclists, and pedestrians to create a better understanding of the rights for shared-use facilities

3. Develop Title 21 ordinance requirements for subdivision development, commercial redevelopment, and maintenance responsibilities that require sidewalks to meet ADA requirements and pedestrian safety and access needs, and to further the sidewalk connectivity goals

4. Update the Areawide Trails Plan (Anchorage Non-motorized Transportation Plan) to incorporate the Commuter Bike Lane Plan and the Pedestrian Plan

5. Implement sidewalks, pathways, and bicycle lanes along all new roadway projects, in accordance with approved plans

6. Enforce existing ordinances that require property owners (business and residential) to clear sidewalks adjacent to their properties

7. Encourage and promote programs providing safe access to schools and walking as a healthy exercise, such as the Walking School Bus

8. Promote walking as the mode of choice for short trips by giving priority in the Pedestrian Plan to the completion of the pedestrian network that serves employment centers, pedestrian districts, schools, neighborhood shopping, and parks

Freight Distribution

Policy Recommendations

- Establish policy to incorporate commercial vehicle requirements and provisions in transportation design study reports and plan reviews

- Provide opportunities for input to the AMATS, MOA, and DOT&PF from the freight community on matters affecting freight operations, and movements

- Develop policies that consider safety, efficiency, cost-effective movement, and terminal needs for freight, goods, and commercial vehicles in land use and transportation infrastructure decisions

Photo courtesy of MOA Traffic Department

Action Item Recommendations

1. Improve the National Highway System and the access and circulation for trucks in major transportation corridors

2. Integrate freight requirements and objectives into roadway planning, including access and mobility in the context of other community planning objectives

3. Establish consistency between the State of Alaska and the MOA with respect to maximum weight and size regulations and design requirements for roadways

4. Coordinate and update the MOA *Design Criteria Manual* and the State of Alaska *Preconstruction Manual* to address freight movement needs

5. Encourage AMATS Freight Advisory Committee input and involvement in transportation policy and planning matters affecting goods movement

Regional Connections

Policy Recommendations

- Provide routine data collection and updates of freight volumes and tonnage that enter Alaska through the Port of Anchorage and Ted Stevens Anchorage International Airport to better forecast transportation facility needs
- Develop policy positions for regional transportation investments, land use impacts, cost responsibility, and multimodal mobility principles and strategies
- Provide policy support for technology, capacity, and efficiency improvements at the Port of Anchorage to strengthen its competitive position and contain shipping costs

Action Item Recommendations

1. Improve access, mobility, and signage to marine, aviation, and other intermodal facilities
2. Implement National Highway System improvements and Commercial Vehicle Intelligent System Network (CVISN) elements
3. Continue collaboration and regional planning with the Mat-Su Borough, Mat-Su communities, Kenai Peninsula Borough, and the Alaska Railroad
4. Examine strategies and options for regional public transportation services, including institutional, financial, and operating aspects. Consider market potential, timing, and route priorities.

Congestion Management

Policy Recommendations

- Establish responsibility, accountability, and resources for MOA departmental staff to steward and promote the development of congestion management, transportation system management (TSM), traffic demand management (TDM), and parking management programs
- Assess transportation system performance every 3 years or more often through the following:
  - Assessing level of service at specified intersections and for limited-access roadway segments
  - Studying corridor travel time in peak- and off-peak periods
  - Tracking Texas Transportation Institute mobility statistics and results and comparing the performance of the MOA and other urban areas
  - Tracking transit patronage and productivity statistics
  - Reviewing building permits and trends with respect to progress in achieving Anchorage 2020
- Update complete traffic signal system timing and coordination in 2010 and every 4 years thereafter
- Incorporate Intelligent Transportation System (ITS) elements, as specified in the MOA ITS architecture document, in all improvement projects
- Monitor congestion management progress and achievement to reveal the most effective and cost-efficient approaches to achieve program goals

Action Item Recommendations

1. Initiate Tudor Road Corridor Management Plan development and its implementation
2. Establish and maintain an ongoing and highly focused "Pinch Point Fixes Program" in collaboration with the current highway safety improvement program (spot safety program)
3. Accelerate funding and implementation of signal system technology upgrades and construction of an MOA traffic management center
4. Expedite implementation of a traffic signal pre-emption system for emergency vehicles
5. Implement organization restructuring, scoping, and contractor services for a new travel-options program and employer-collaboration
6. Design pilot congestion management strategies and an implementation program for the Glenn Highway and for Northern Lights Boulevard east of the Seward Highway
7. Establish a guaranteed ride-home program for ride sharing participants (carpools or vanpools) and expand the vanpool program as rapidly as possible
8. Enhance the 511 Travel in the Know program for emergency roadside assistance to expedite emergency response and dissemination of traveler information advisories
9. Continue deployment and implementation of ITS strategies such as CVISN, automated data collection, incident response, and weather and traffic reporting

Coordination of Local Plans

Policy Recommendations

The following policies should be established by AMATS, the organization responsible for metropolitan transportation planning in the MOA:

- Continue to work closely with and consider MOA land use codes, comprehensive plans, pedestrian plans, bicycle plans, transit plans, and design standards in project selection and development
- Promote multimodal connectivity and efficiency at aviation, port, and rail facilities and at military bases to maintain Anchorage, regional, state, and worldwide transportation services for passengers, goods, and national security
- Review all roadway reconstruction projects by the appropriate municipal parties or entities
- Continue discussions between the Mat-Su Borough and Anchorage on regional transportation issues

Maintenance and Operation

1. Increase funding for snow clearance, sweeping, and maintenance of sidewalks to improve usability and access to transit
2. Continue to coordinate State of Alaska and MOA street maintenance as well as street and sidewalk snow clearing
3. Develop improved information system and records for the pavement management program to prolong existing surfaces

Roadway Classifications

The OS&HP establishes the functional street classification of streets and highways required to accommodate the transportation needs identified in this LRTP. The OS&HP acts as a tool for implementing the LRTP by officially identifying, by ordinance, the locations, classifications, and minimum right-of-way requirements and design parameters for each functional classification. The OS&HP supplements Title 21 of the municipal code pertaining to the transportation system and complements the Anchorage 2020 comprehensive plan.

Functional street classifications encompass both the design characteristics of streets and the character of service the streets are intended to provide. Traditionally, functional classification reflects a hierarchy of streets ranging from those that are primarily for travel mobility and access to businesses (arterials) to those that are primarily for access to property (local streets).

The LRTP recognizes and retains the existing MOA classification system of freeways, expressways, arterials, collectors, and local streets (described in Chapter 5). To address new recommendations in this LRTP, revisions of certain current functional street classifications are needed. (See Appendix C.)

With adoption of Anchorage 2020, it has become clear that the traditional functional classification system needs to be supplemented to reflect greater emphasis on more balanced consideration of function for pedestrians, bicyclists, transit users, and motorists. As a result, the traditional functional classification may be augmented with a street typology methodology that includes the following designations:

- Residential street
- Main street
- Transit street
- Commercial street
- Industrial street
- Mixed use street
- Park land street
- Institutional district street
- Low-density residential street

The functional classification of a street broadly defines its design and operational characteristics related primarily to the movement of motor vehicles. By contrast, the street typologies further define street relationships with adjacent land use and pedestrians, bicyclists, and transit needs. The design of streets, intersections, sidewalks, and transit stops should be consistent with the type and intensity of the adjacent land use.

The street typologies strike a balance between functional classification, adjacent land use, and multi-modal travel needs. Each street typology sets priorities for various design elements (Appendix C), by incorporating factors related to both the adjacent land uses and the functional classification. Where sufficient public right-of-way exists, all priority design elements may be accommodated. Within constrained public right-of-way, priority design trade-offs may be required to accommodate various travel modes.

The OS&HP should be updated to include typology following adoption of this LRTP.

As a part of the project development process for roadways, the MOA Planning Department should designate the appropriate street typology to be used in the project design.

Air Quality

Policy Recommendation

- Evaluate the impact of regionally significant roadway projects in the LRTP on air quality, including carbon monoxide and particulate matter, and as part of the planning and design process, include methods to mitigate adverse impacts on adjacent populations

Action Item Recommendations

1. Encourage the investigation of health effects of traffic-related pollutants, including particulate matter and toxic air pollutants such as benzene

2. Review new information on health effects of air pollution, including the development of new air quality standards, and incorporate this new information in the local transportation planning process

Process–From the LRTP to Project Implementation

Project Implementation

Before it is implemented, a project or program must first be included in one of the following funding documents: the MOA Capital Improvement Program (CIP), the AMATS Transportation Improvement Program (TIP), or the DOT&PF Statewide Transportation Improvement Program (STIP). The funding document identifies the most likely funding source and ranks the projects and programs by priority.

The CIP is funded locally with general obligation bonds. The AMATS TIP and the DOT&PF STIP are funded primarily with federal transportation dollars originating from the gasoline tax paid into the Highway Trust Fund and complemented by state or local matching funds.

The funding source is important because each requires specific project development processes. It determines whether National Environmental Policy Act (NEPA) documentation or local permitting processes apply to a project.

Regardless of the process, a very important component of project implementation is conformance with local plans. In Anchorage's case, these plans are the Anchorage 2020 comprehensive plan, land use regulations (Title 21), OS&HP, Design Criteria Manual, Areawide Trails Plan, and other local plans. Two important local bodies that provide review are the Planning and Zoning Commission and the Urban Design Commission. LRTP projects are forwarded to these bodies for review during project development. The commissions make recommendations to the Assembly about the proposed projects.

In addition to conforming to local plans discussed above, project implementation will need to consider goals and plans developed to protect the natural environment, an important step in achieving the LRTP goal of preserving and enhancing the natural environment. Toward that end, the following agencies will be consulted during preparation of NEPA documentation: U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, Alaska Department of Natural Resources, Alaska Department of Environmental Conservation, State Historic Preservation Office, Alaska Department of Fish and Game, National Oceanic and Atmospheric Administration – Fisheries Division, and others.

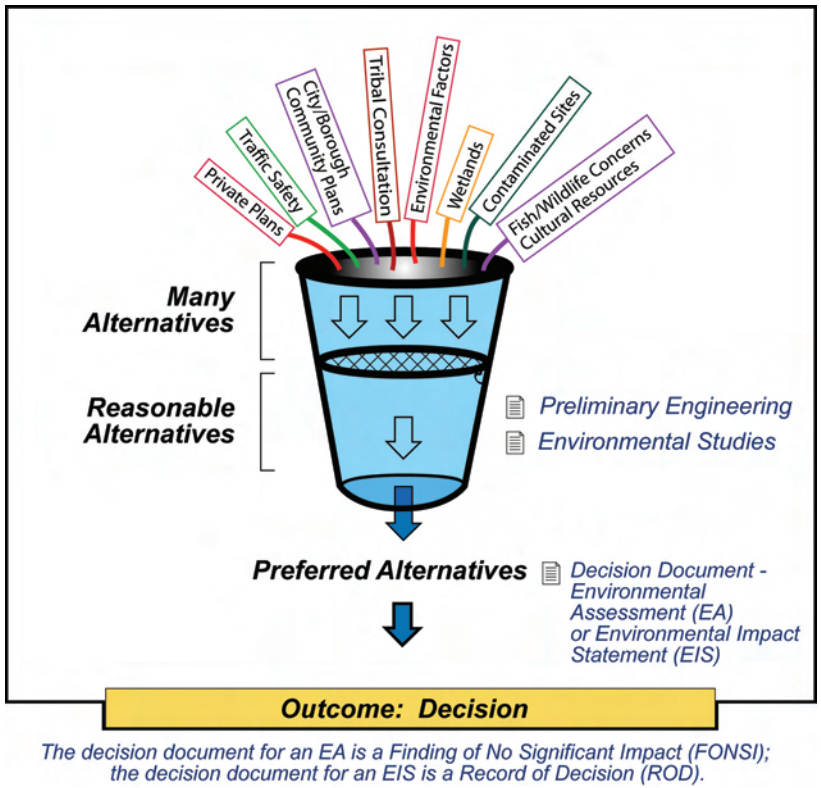
Federal Funding of Project Development

Federal funding requires that a project be completed in accordance with a process defined by the FHWA and in accordance with the NEPA. The end result of the NEPA process is a decision document granting environmental clearance for the project to proceed to detailed design of the preferred alternative. The decision document can vary depending on the level of environmental analysis. The decision document for an Environmental Impact Statement (EIS) or Environmental Assessment (EA) is a Record of Decision (ROD) or Finding of No Significant Impact (FONSI), respectively.

Environmental clearance can also be granted for smaller projects with smaller impacts. These projects receive a Categorical Exclusion upon completion of a Categorical Exclusion checklist and provision of supporting documentation.

In all cases, the decision-making process follows the process shown in Figure 10-1; studies, planning documents, and site-specific information help form many alternatives. These are screened through

Figure 10-1. Project Decision-Making Process



Source: Brooks and Associates

environmental studies and preliminary engineering to identify reasonable alternatives that are further evaluated in the EIS or EA, resulting in selection of a preferred alternative. Public input is sought in completing the document early in the scoping phase and after the draft and final documents are prepared. The ROD or FONSI documents the decision, allowing the next step in the project development to begin.

The typical schedule for a federal-aid highway project requiring an EIS is shown in Figure 10-2. Some steps can be accomplished simultaneously. After ensuring all federal, state, and local requirements are met, FHWA approval is required to move the project to the next step.

The preliminary engineering completed to support the environmental document is guided by municipal, state, and federal design criteria, the State of Alaska Preconstruction Manual, and the MOA Design Criteria Manual. Other guidance is provided by local planning documents such as the OS&HP, the Anchorage Areawide Trails Plan, and the broader Anchorage 2020 comprehensive plan.

Single-Occupancy Vehicle Checklist

Regulations require review of all federally funded road improvement projects that will result in a significant increase in SOV capacity. This requirement is intended to ensure that alternatives to SOVs are evaluated. Title 23, Section 500.505, of the *Code of Federal Regulations,* requires that for such corridors a congestion management system provide an appropriate analysis of all reasonable strategies (including multimodal) for travel demand reduction and operational management. In other words, a new highway construction project that adds general purpose lanes to an existing highway or new highway link cannot be built until it is demonstrated that travel-demand-reduction strategies cannot fully satisfy the need for additional capacity, therefore warranting additional SOV capacity.

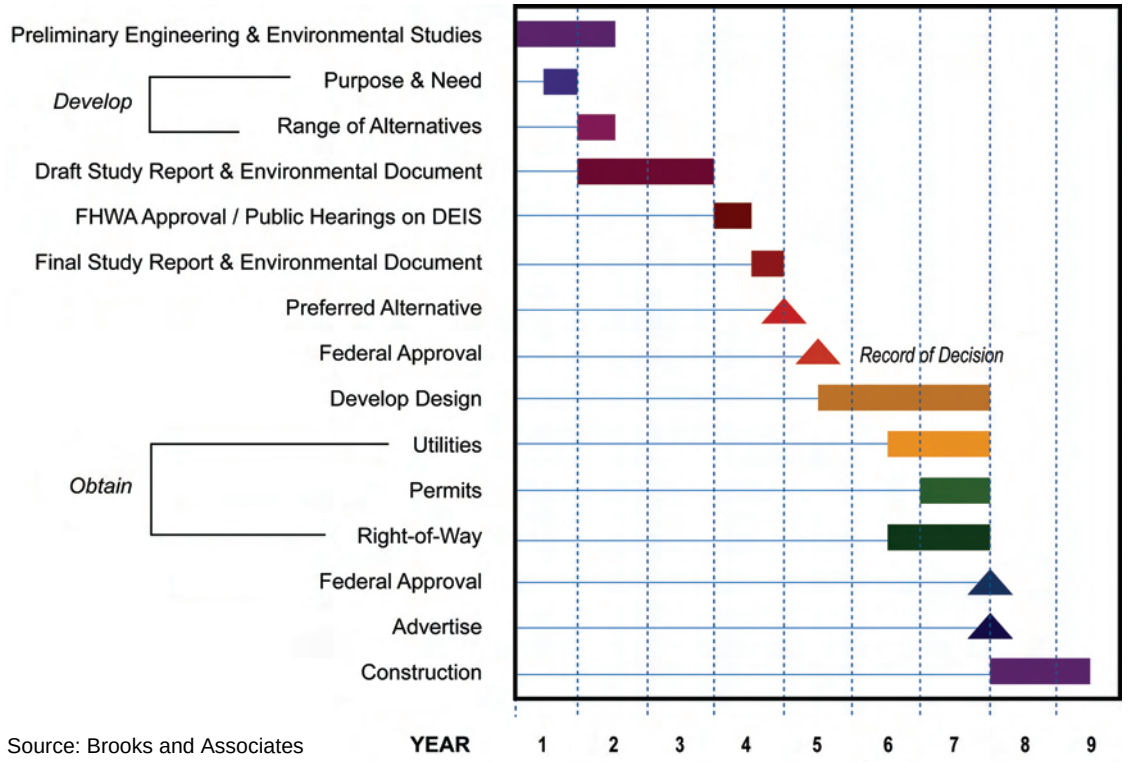
To ensure consistency in the preparation of the required SOV analyses, an SOV analysis checklist has been developed. (See Appendix D.) The SOV checklist will be required to be completed by the sponsoring agency for each federally funded SOV expansion project before the final design phase begins.

Local Funding Project Development

Projects being developed with local funding, such as state or municipal general obligation bonds, follow a different path. The NEPA does not govern the process, but local permitting processes must be completed and required clearances must be obtained for project components such as crossing a local stream or filling in wetlands.

Project advancement includes development of alternatives. Alternatives are created to encourage

Figure 10-2. Typical Schedule for a Federal-Aid Highway Requiring an Environmental Impact Statement



Source: Brooks and Associates

discussion, increase knowledge about project attributes, and create a means to evaluate benefits and impacts associated with different strategies. They are presented at public meetings and scrutinized by technical staff during the course of project development.

Local projects now incorporate context-sensitive design (CSD). Recent resolutions passed by AMATS call for the integration of CSD strategies in future project development. A working definition of CSD developed at a national conference sponsored by Maryland State Highway Administration and FHWA states:

> Context sensitive design asks questions first about the need and purpose of the transportation project, and then equally addresses safety, mobility, and the preservation of scenic, aesthetic, historic, environmental, and other community values. Context sensitive design involves a collaborative, interdisciplinary approach in which citizens are part of the design team.

(from *A Guide for Achieving Flexibility in Highway Design*, by the American Association of State Highway and Transportation Officials, 2004)

Public Involvement

An extensive public involvement process is incorporated in the project development steps for every project in this LRTP. Both federal-funded and local-funded projects incorporate substantial levels of public involvement at every step.

The public involvement process identifies and includes potentially affected interests so that public concerns are articulated and thoughtful discussions are facilitated. The AMATS Public Involvement Program entitled "Anchorage on the Move" provides guidelines for the public involvement approach. In addition, public involvement is conducted consistent with Title 23, Section 450.316(b)(1), of the *Code of Federal Regulations*.

CHAPTER 11. Air Quality and the Transportation Plan

Background

Air quality in Anchorage is subject to national ambient air quality standards established by the U.S. Environmental Protection Agency (EPA). The EPA has established standards for ground-level ozone, sulfur oxides, nitrogen dioxide, airborne lead, carbon monoxide (CO), and particulate matter less than 2.5 microns in diameter (PM-2.5) and less than 10 microns in diameter (PM-10). These *criteria pollutant* standards were established to protect health, particularly among those most susceptible to the effects of air pollution.

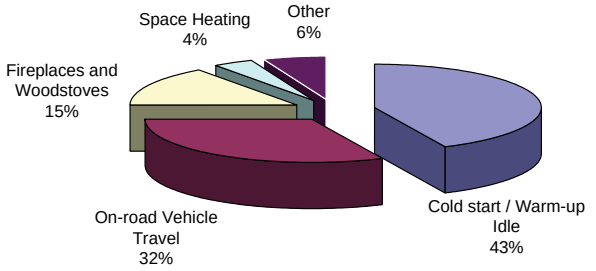
Anchorage enjoys low levels of most types of air pollution. Although almost half the U.S. population live in areas that do not meet the ground-level ozone standard; levels in Anchorage are among the lowest in the United States. Sulfur oxides, nitrogen dioxide, and airborne lead levels in Anchorage are also not significant concerns. Monitored levels of PM-2.5, sometimes called fine particulate, are well below the federal standard.

CO and PM-10 levels are concerns. Although Anchorage now meets air quality standards for all the criteria pollutants, it does experience elevated levels of CO and PM-10. Elevated ambient or outdoor CO concentrations have been shown to cause early onset of angina or chest pain and may be associated with an increase in death rates among the elderly. Elevated ambient levels of PM-10, sometimes called coarse particulate, have been linked with increases in asthma and upper respiratory illness. A local Anchorage study has shown that higher PM-10 concentrations are associated with an increase in outpatient visits for asthma.

The highest CO concentrations in Anchorage occur in mid-winter. When temperatures are cold and daylight hours are fewer than in other seasons, strong temperature inversions develop, trapping vehicle emissions of CO and other pollutants close to the ground. CO emissions also increase during vehicle start-ups when engines are cold. In some neighborhoods, cold starts and warm-up idling account for more than 40 percent of all CO emissions (Figure 11-1). Emissions of volatile organic compounds like benzene are also high during cold starts.

During the past two decades, Anchorage has experienced a dramatic improvement in CO air quality. CO concentrations have dropped by more than 60 percent since the mid-1980s (Figure 11-2), and no violations have been measured since 1996. Advancements in air pollution control technology on newer vehicles and the Anchorage Vehicle Inspection and Maintenance Program have contributed to this improvement in air quality. The MOA Share-A-Ride and vanpool programs have also proved beneficial. More recently the MOA and State of Alaska have promoted the use of engine block heaters to reduce cold start emissions when temperatures fall below 20°F.

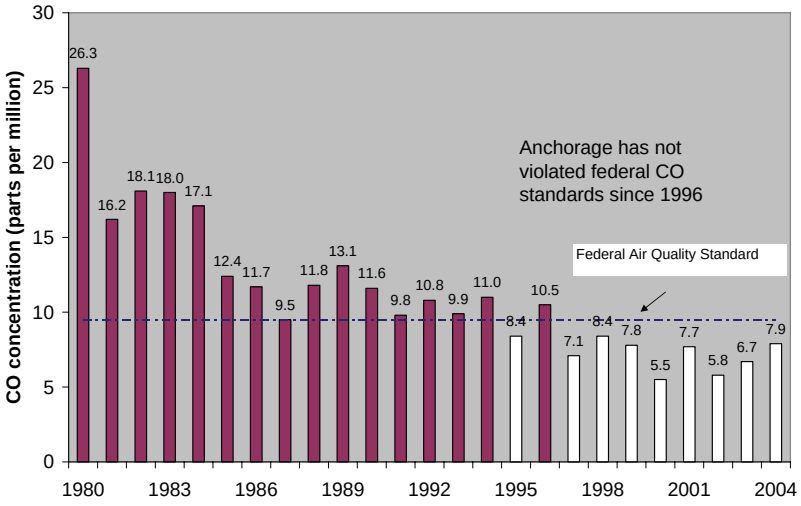
Figure 11-1. Source of CO Emissions in a Typical Anchorage Residential Area



Source: *Anchorage CO Maintenance Plan*, MOA Department of Health and Human Services, September 2003

Despite these improvements, CO concentrations can still approach the standard on days with severe inversions. Anchorage was one of the last cities in the United States to meet the standard for CO, and until recently, was classified as a

Figure 11-2. Anchorage CO Trend



Source: MOA Department of Health and Human Services, 2005

nonattainment area for this pollutant. In 2004, the EPA reclassified Anchorage as a *maintenance area* for CO when it approved Anchorage's air quality plan for maintaining compliance with the CO standard during the next 20 years.

PM-10 levels in Anchorage approach and sometimes exceed federal air quality standards. During the late March/early-April period of spring break-up, melting snow and ice reveal a winter's worth of accumulated sand, grit, and dirt on Anchorage roads. This material is stirred up by passing traffic especially on high-speed, high-volume arterial roadways.

On occasion, dust stirred up from these roads can cause PM-10 levels to approach federal air quality standards. On extremely windy days, when blowing dust from roads combines with naturally occurring windblown dust from glacier river valleys in the Mat-Su Valley, PM-10 levels in Anchorage can reach concentrations two to three times higher than the standard. Because much of the PM-10 experienced on these windy days is from natural sources, these events are not considered violations of the standard, however. Table 11-1 shows maximum PM-10 concentrations for the past decade.

The EPA is currently reviewing the PM-10 and PM-2.5 air quality standards. This process could result in new, more stringent standards. Because Anchorage is currently close to exceeding current PM-10 standards, a more stringent standard could pose difficulties.

Annual average and 24-hour average PM-2.5 concentrations in Anchorage are less than half the current federal standard. Therefore, Anchorage would likely meet a new, more stringent standard, if adopted by EPA. Although PM-10 and PM-2.5 are both particulate matter, they come from distinctly different sources. PM-2.5 is emitted during combustion processes (such as wood burning, diesel and gasoline engines, incineration), and PM-10 originates almost exclusively from geologic mineral sources such as pulverized winter traction sand and finely-ground glacial dust.

Motor vehicles are sources of benzene and other toxic air pollutants. Although the EPA has not established ambient air quality standards for toxic pollutants like benzene, concern about these pollutants is growing. Monitoring suggests that ambient benzene concentrations in Anchorage air

Table 11-1. Maximum 24-Hour Average PM-10 Concentrations by Year, 1996–2005

Calendar Year	PM-10 Concentration (micrograms/ cubic meter)	Comments
1996	**158**	May 14, high wind
1997	139	April 24, low wind
1998	115	March 30, low wind
1999	94	April 3, low wind
2000	111	April 14, low wind
2001	150	March 18, high wind
2002	105	April 4, high wind
2003	**590**	March 12, high wind
2004	97	April 13, low wind
2005	145	April 12, low wind

Bold font indicates that the concentration exceeded the federal air quality standard of 150 micrograms per cubic meter.

Source: MOA Department of Health and Human Services, 2005

are high in comparison with other urban areas in the United States. Vehicle cold start emissions and a gasoline formulation with high benzene content may be responsible. More investigation is needed.

Impact of the 2025 LRTP on Air Pollutant Emissions

Total vehicle trips in Anchorage are expected to increase by approximately 30 percent during the 20-year lifetime of the LRTP. By 2025, approximately 235,000 more motor vehicle trips than in 2005 will be made each weekday.

Impacts of the LRTP and expected growth in travel activity on emissions of CO and PM-2.5 emissions were analyzed with the EPA MOBILE6.2 model. This model was used in conjunction with the Anchorage travel model to estimate emissions from the LRTP network in 2005, 2015, and 2025.

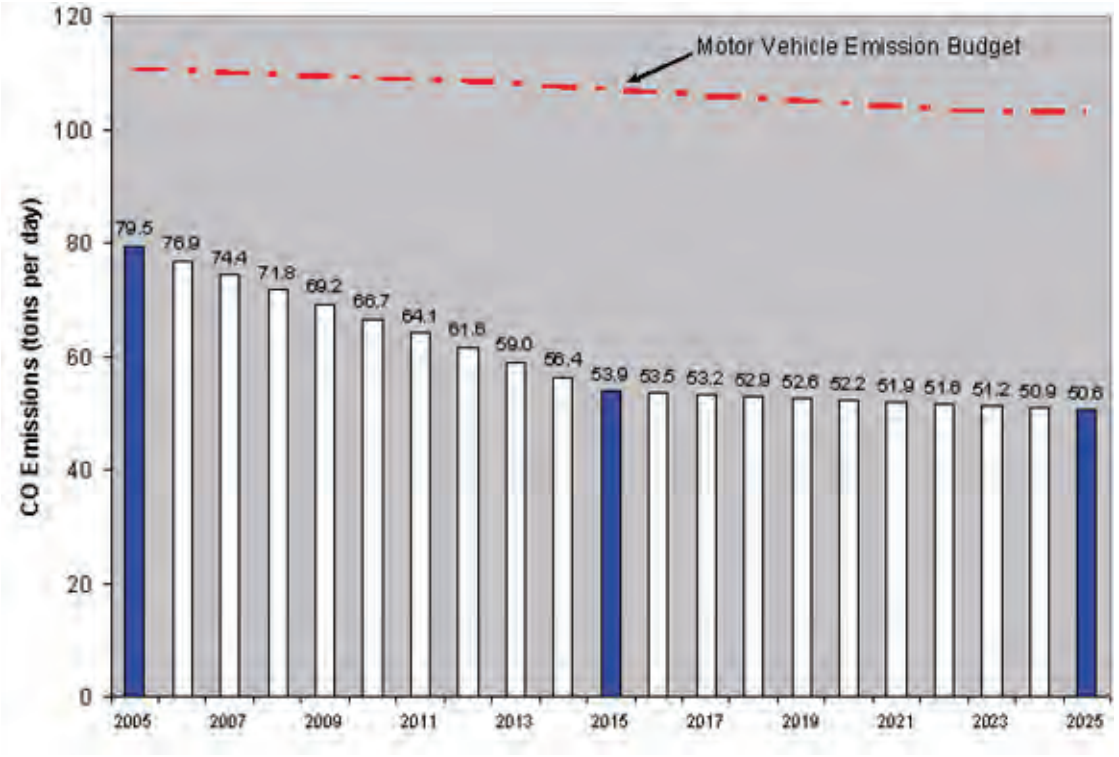
Air quality modeling tools available for evaluating PM-10 emissions are limited. MOBILE6.2 is incapable of estimating PM-10 emissions resulting from roadway dust. Thus, a *qualitative* analysis of the impact of growth in travel envisioned in this LRTP was performed to evaluate PM-10 impacts.

Carbon Monoxide Emission Projections

During the next 20 years, improvements in emission control technology and new low-sulfur gasoline requirements are expected to lower CO emissions in the average vehicle by about half. Despite the anticipated growth in travel, CO emissions in Anchorage are expected to decline during the 2005-2025 lifetime of the LRTP.

Because Anchorage is a CO maintenance area, federal regulations on transportation conformity require a demonstration that the 2025 LRTP will not interfere with maintaining compliance with the CO standard. The budget for CO emissions from motor vehicles is established in the *Anchorage Carbon Monoxide Maintenance Plan* (prepared by the MOA Department of Health and Human Services and adopted by the Anchorage Metropolitan Area Transportation Solutions and Anchorage Assembly in 2003) as a means to ensure continued compliance with the CO standard. Figure 11-3 illustrates that projected emissions are well below the budget for the lifetime of the LRTP.

Figure 11-3. Projected CO Emissions from Anchorage Transportation Network

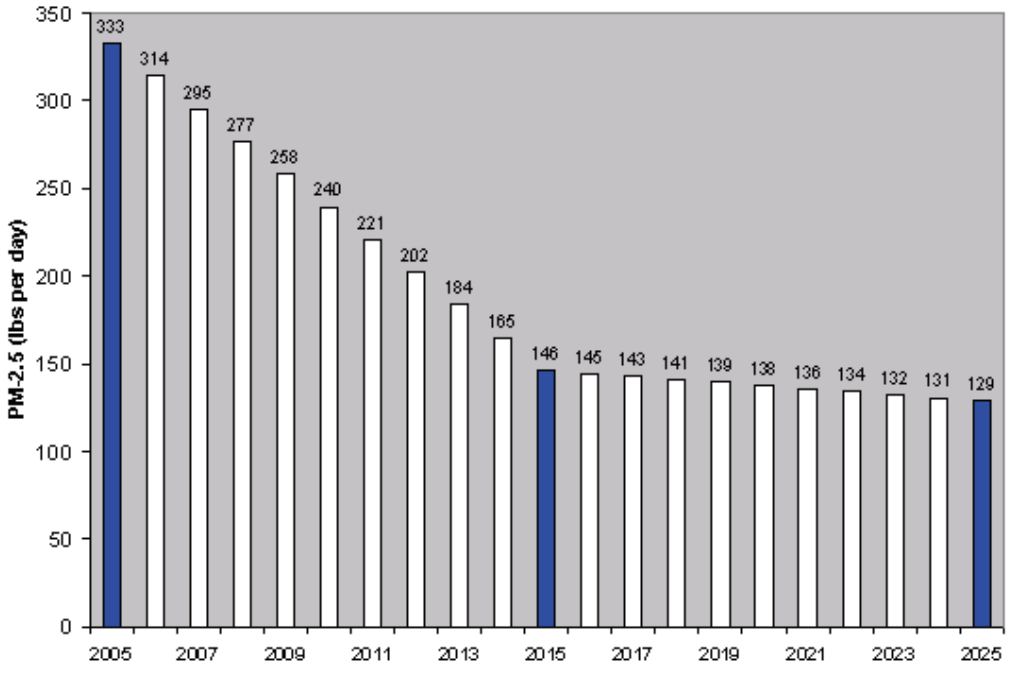


Source: *Anchorage CO Maintenance Plan*, MOA Department of Health and Human Services, September 2003

PM-2.5 Emission Projections

Improvements in emission control technology for motor vehicles and low-sulfur fuels are expected to substantially reduce transportation-related PM-2.5 emissions during the next 20 years. In particular, stringent new EPA standards for heavy-duty diesel engines become effective by 2007. In addition, new requirements for low-sulfur diesel fuel will lower the sulfur content in Alaska diesel fuel from the current level of 750 parts per million to just 15 parts per million in 2006. Emission reductions for PM-2.5 will be realized as trucks equipped with these low-emission diesel engines replace the older, dirtier fleet vehicles. Modeling projections suggest transportation network PM-2.5 emissions will drop by approximately 60 percent even as travel increases during the next 20 years (Figure 11-4).

Figure 11-4. Projected PM-2.5 Emissions from Anchorage Transportation Network



Source: MOA Department of Health and Human Services, 2005

Because Anchorage is an attainment area for PM-2.5, no emission budget has been established for this pollutant.

2025 LRTP Impacts on PM-10 Emissions

As noted earlier in this chapter, PM-10 emissions were not modeled and quantitative projections of PM-10 emissions were not prepared; however, EPA has developed an equation that allows PM-10 emissions related to roadway dust to be estimated.

Although some have questioned the validity of the equation for developing quantitative estimates of PM-10 emissions, the general relationships described in the equation are useful in a qualitative analysis of future PM-10 emissions. These relationships are stated below.

7. PM-10 emissions increase proportionally with vehicle miles traveled.
8. PM-10 emissions increase exponentially in relation to vehicle weight. (Large vehicles contribute disproportionately to PM-10 emissions.)
9. PM-10 emissions increase with increasing roadway silt loadings. (Dirty roads result in increased PM-10 emissions.)

Regardless of the configuration of the transportation network envisioned in the LRTP, the number of vehicle miles traveled is expected to increase by approximately 30 percent. A slight increase in the proportion of large vehicles (trucks and buses) is also expected. These factors are expected to increase PM-10 emissions from the

transportation network, unless the third factor in the equation, roadway silt loading, is addressed,

Silt loadings are affected by road sanding, dirt, and mud track-out from construction sites, topsoil operations, and dirt spillage during hauling operations. The MOA is working to develop cost-effective ways to reduce or mitigate the impact of roadway silt that has the potential to be re-entrained by passing traffic. Chapter 10 includes a policy statement and action item that supports this effort. During the next few years, it is important that these emissions be successfully controlled to ensure that Anchorage remains in compliance with the PM-10 standard.

Appendices

A. Abbreviations and Glossary

B. Environmental Justice

C. Street Typology Additions to Functional Classifications

D. AMATS Checklists for Project Agency Sponsors

APPENDIX A. Abbreviations and Glossary

Abbreviations

ADA	Americans with Disabilities Act
ADT	average daily traffic
AMATS	Anchorage Metropolitan Area Transportation Solutions (formerly "Study")
Anchorage 2020	*Anchorage 2020: Anchorage Bowl Comprehensive Plan*
ARDSA	Anchorage Roads and Drainage Service Area
ARRC	Alaska Railroad Corporation
CIP	Capital Improvement Program
CMAQ	congestion mitigation and air quality
CMS	Congestion Management System
CO	carbon monoxide
CSD	context-sensitive design
CVISN	Commercial Vehicle Intelligent System Network
DOT&PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GARVEE	Grant Anticipation Revenue Vehicle
GIS	geographic information system
HOV	high-occupancy vehicle
ISER	Institute of Social and Economic Research
ITS	Intelligent Transportation System
LOS	level of service
LRSA	limited road service area
LRTP	Long-Range Transportation Plan
MOA	Municipality of Anchorage
mph	miles per hour
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NHS	National Highway System

OS&HP	Official Streets and Highways Plan
PM-2.5	particulate matter less than 2.5 microns in diameter
PM-10	particulate matter less than 10 microns in diameter
ROD	Record of Decision
SAFETEA	Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003
SOV	single-occupancy vehicle
STIP	Statewide Transportation Improvement Program
TAZ	traffic analysis zone
TEA-21	Transportation Equity Act for the 21st Century
TDM	transportation demand management
TIP	Transportation Improvement Program
TSAIA	Ted Steven Anchorage International Airport
TSM	transportation system management
VHT	vehicle hours traveled

Glossary

Americans with Disabilities Act (ADA): Federal civil rights legislation for disabled persons passed in 1990; calls on public transit systems to make their services more fully accessible, as well as to underwrite a parallel network of paratransit service.

Anchorage Metropolitan Area Transportation Solutions (AMATS): A federally mandated, multi-agency team that works together to plan and fund the transportation system in the Anchorage and Chugiak-Eagle River areas when federal funds are being used. AMATS (formerly known as the Anchorage Metropolitan Area Transportation Study) comprises representatives from a variety of organizations.

Anchorage Municipal Code (AMC): The legislative tool to enforce municipal policies. It is divided into 24 chapters, generally referred to as "Titles." The key transportation-related titles are:

- AMC Title 9 is titled "Traffic Code" and covers what is considered the "traffic" aspects of transportation. Items such as traffic signs and markings, general driving regulations, and parking regulations are addressed.
- AMC Title 21 is titled "Land Use Regulation" and contains transportation requirements pertaining to various land use development issues. Requirements and standards for subdivision streets, zoning classifications, and changes are covered in Title 21.
- AMC Title 24 is titled "Streets and Rights-of-Way." Its content includes issues such as construction, snow removal, and landscaping.

Anchorage Roads and Drainage Service Area (ARDSA). The largest Road Service Area in Anchorage. ARDSA has full maintenance and construction authority for drainage and road facilities in a geographic area that covers the Anchorage Bowl.

Areawide Trails Plan: A planning document (prepared in April 1997) that covers existing and future trail development issues within the Municipality of Anchorage, addressing all transportation and recreational corridors. Included are motorized trails, bike trails, cross-country trails, equestrian trails, pedestrian trails, sled dog trails, and other related classifications. The plan also provides for linkages to state and national forest lands.

Arterial: A functional classification of a type of roadway that provides for trips of medium to moderately long length. Intersections are at-grade, and access from adjacent lots is partially controlled. Some access to adjacent major land uses may be permitted. Arterials may be divided two-directional facilities, couplets of undivided one-way roadways or, in some situations, undivided two-way roads. These facilities are often subclassified as "major arterial" and "minor arterial". (S*ee Major Arterial, Minor Arterial, and Official Streets and Highways Plan*.)

Bypass: A road designed to go around existing development. It could be classified as a freeway or expressway.

Capital Improvement Program (CIP): A municipal document that addresses funding for transportation and public facilities in the Municipality of Anchorage. Most projects funded in the CIP come from local taxes.

Categorical Exclusion: A category of actions that do not individually or cumulatively have a significant effect on the human environment. When ability to demonstrate this status is documented, a project requires neither an Environmental Assessment nor an Environmental Impact Statement.

Census block : A small area bounded on all sides by visible features, such as streets, roads, streams, and railroad tracks, and by invisible boundaries, such as city, town, township, and county limits, property lines, and short, imaginary extensions of streets and roads.

Citizen Advisory Committee (CAC): A committee that every organization like Anchorage Metropolitan Area Transportation Solutions (AMATS) in the United States is federally mandated to have. The Municipal Planning and Zoning Commission fills this requirement for AMATS.

Clean Air Act (CAA): Federal legislation that requires each state with areas that have not met federal air quality standards to prepare a State Implementation Plan (SIP). The sweeping 1990

amendments to the CAA established new air quality requirements for the development of metropolitan transportation plans and programs.

Collector: A functional classification of a type of roadway that offers a balanced service for both moving traffic and providing access. Relatively low-speed, short trips are accommodated. A collector collects traffic for local streets and larger properties (and in limited situations, single lots), and channels it to the arterial system. These facilities are further subclassified as "Residential," "Industrial/ Commercial," and "Neighborhood."

Commute: A repetitive home-to-work or work-to-home trip.

Commute alternative: Includes car pooling, van pooling, transit, bicycling, walking, and telecommuting, as well as any alternative work-hours program.

Comprehensive Plan: A document that serves as a guideline for community development. It is a policy document that integrates social, economic, cultural, land use, environmental, transportation, and energy concerns. The Comprehensive Plan identifies the issues, goals, and objectives that provide a framework for community decision-making. The Anchorage Bowl Comprehensive Development Plan, the Anchorage CBD (Central Business District) Comprehensive Development Plan, the Turnagain Arm Comprehensive Plan, and the Chugiak-Eagle River Comprehensive Plan are each considered portions of the umbrella title "Comprehensive Plan." The current Comprehensive Plan for Anchorage is *Anchorage 2020: Anchorage Bowl Comprehensive Plan* (Anchorage 2020).

Congestion Management Program: A set of potential actions that, if taken, would reduce congestion levels on the overall transportation network within the Municipality of Anchorage. The results of the recommended actions would have the effect of improving traffic circulation, reducing the number and cost of physical improvements to the roadway, and improving air quality.

Congestion Mitigation and Air Quality (CMAQ): A program that emphasizes the importance of the link between transportation and air quality. To that end, CMAQ program funding is applied to transportation projects that reduce vehicle emissions and help improve air quality. Transit and traffic flow improvement projects are included, as are projects such as ride sharing, vehicle emissions inspection and maintenance programs, bicycle and pedestrian improvements, and alternative fuels.

Design Criteria Manual (DCM): A municipal document that provides the engineering parameters for drainage, illumination, slope, grade, elevation, and so forth for all municipal and private development projects. A companion document is the Project Management Manual (PMM). The DCM/PMM is the Municipality of Anchorage's equivalent to the State of Alaska's Highway Preconstruction Manual.

Dwelling unit: A building, or portion of a building, that contains separate living facilities.

Environmental Assessment (EA): An environmental impact document prepared in compliance with to the National Environmental Policy Act. When the significance of impacts of a transportation project proposal is uncertain, an EA is prepared to assist in making this determination. If it is found that significant impacts will result, the preparation of an Environmental Impact Statement is required.

Environmental Impact Statement (EIS): An environmental impact document prepared in compliance with to the National Environmental Policy Act. An EIS must be prepared if it is determined that a federally sponsored project with federal involvement may have a significant impact.

Express bus: Bus transit service with a limited number of stops, either from a collector area directly to a specific destination or in a particular corridor with stops en route to major transfer points or activity centers.

Expressway: The functional classification of a divided highway that is designed primarily for through traffic, with full or partial control of access. Intersections are either at-grade or grade-separated. Expressways move traffic efficiently, but less quickly than freeways, because of at-grade intersections. Expressways do not provide access to adjacent land uses. Expressways are commonly owned and maintained by the State of Alaska, and their construction funded with federal assistance. The Highway Preconstruction Manual of the Alaska Department of Transportation and Public Facilities

sets specific guidelines for acceptable design and construction of expressway facilities. International Airport Road, between the international airport and Minnesota Drive is designated as a Class IV Expressway on the Official Streets and Highways Plan.

Federal Highway Administration (FHWA): An agency of the U.S. Department of Transportation responsible for funding highways, trails, and ferries. FHWA authorizes expenditures from the Highway Trust Fund and sets deadlines for planning documents that the Anchorage Metropolitan Area Transportation Solutions (AMATS) is responsible for meeting.

Federal Transit Administration (FTA): An agency of the U.S. Department of Transportation that develops federal policy on public transit issues and allocates capital and operating funds for public transit projects (formerly the Urban Mass Transit Administration).

Federation of Community Councils (FCC): A municipally funded body composed of almost 40 community councils. The FCC is a formal participant in scoring Transportation Improvement Program projects.

Feeder bus: Local bus transit service that provides passengers with connections to mainline arterial service, an express bus service station, or an express bus stop or terminal.

Finding of No Significant Impact (FONSI): The decision document for an Environmental Assessment. If it is determined that there will be no significant impacts from a project, a FONSI is prepared to conclude the process and document the decision. A FONSI is issued when environmental analysis and interagency review during the Environmental Assessment process find a project to have no significant impacts on the quality of the environment.

Freeway: The functional classification of a limited access type of roadway that is intended to provide safe and efficient movement of substantial volumes of traffic at high speeds. Access is rigidly controlled and restricted to grade-separated intersections (interchanges). Freeways in the Municipality of Anchorage are traditionally owned and maintained by the State of Alaska, and their construction funded with federal assistance. The Highway Preconstruction Manual of the Alaska Department of Transportation and Public Facilities sets specific guidelines for acceptable design and construction of expressway facilities. Seward Highway (Chester Creek to Rabbit Creek Road), Glenn Highway (Bragaw Street to the Mat-Sub-boundary), and Minnesota Drive (International Airport Road to Seward Highway) are designated as Class V Freeways on the Official Streets and Highways Plan.

Geographic information system (GIS): GIS is an information system that is designed to work with data referenced by spatial or geographic coordinates. It may be considered a "tool" for analysis and decision making. It may be composed of maps, databases and point information.

High-occupancy vehicle (HOV) lane: The technical term for a car pool or commuter lane.

Household: All the persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters.

Highway Preconstruction Manual (HPM): The state manual for design guidance. Highway projects that use federal funding assistance are subject to the development process and design standards contained in the latest version of the Highway Preconstruction Manual of the Alaska Department of Transportation and Public Facilities (DOT&PF) The HPM is the state's equivalent to the municipal Design Criteria Manual. It affects all roadways under DOT&PF's jurisdiction.

Inspection and Maintenance Program (I/M Program): An element of Anchorage's Air Quality Plan.

Intelligent Transportation System (ITS): A system that uses modern electronic, communication and control technologies to provide travelers with better information on traffic condition, provide vehicles with safety equipment, and improve the transportation infrastructure.

Intermodal: Between or including more than one means, or mode, of transportation, such as automobile, transit, ship, bicycle, and walking.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA): Landmark federal legislation (pronounced "ice tea") signed into law in 1991 and

that made broad changes in the way transportation decisions are made. It provided funding authorizations for highways, safety, and mass transportation from the Highway Trust Fund. ISTEA emphasized diversity and balance of modes, as well as the preservation of existing systems before construction of new facilities. ISTEA expired in 1997, but much of its program structure is carried forward in new federal legislation.

Land Use Regulation: Anchorage Municipal Code Title 21. (S*ee Anchorage Municipal Code.*)

Level of Service (LOS): A standard means of measuring traffic congestion by evaluating the capacity of a road with respect to the number of vehicles using the road in a given time frame. LOS is categorized into six levels, A through F, with LOS A representing the best possible condition and F representing the worst.

Limited stop bus: Bus transit service that serves only specific stops with the intent of serving important destinations such as major employment centers efficiently.

Local Road: A functional classification of a type of roadway that provides access to individual homes and other land uses and is discussed in Chapter 1 of the Design Criteria Manual. The required improvements to local roads are established in Anchorage Municipal Code (AMC) Title 21. Improvements to local roads constructed under Road Improvement Districts (RIDs) will also follow requirements as described in AMC Title 21. The Municipal Assembly is responsible for approving RIDs and granting any waivers to the standards. (S*ee Road Improvement District.*)

Long-Range Transportation Plan (LRTP): A plan that covers various modes of surface transportation such as automobile and transit. The currently adopted plan identifies the long-range planning goals and addresses the general transportation needs of the community for a 20-year forecast period, through the year 2010. Conformity to national ambient air quality standards is evaluated. This document also identifies corridor and subarea studies that provide a closer look at specific areas and identify the needs and relationship of that area to the overall transportation network. The LRTP is produced by the Anchorage Metropolitan Area Transportation Solutions (AMATS) to fulfill the federal requirements. Recommendations of the LRTP and ensuing studies are then used to develop the local Needs List and, subsequently, the AMATS Transportation Improvement Program (TIP).

Major Arterial: A functional subclassification of a type of roadway that provides for moderately long (inter-area), through trips between regionally significant traffic generators. Its primary function is traffic movement. A major arterial offers direct access to other arterials and collectors and limited access to adjacent land uses, particularly major traffic generators. A major arterial may be divided or undivided, a two-directional facilities, or a one-way couplet. Major arterials are designated in the Official Streets and Highways Plan (OS&HP). In the Municipality of Anchorage, these facilities are most often owned and maintained by the Alaska Department of Transportation and Public Facilities, with construction funded by the Federal Highways Administration. (S*ee Arterial and Official Streets and Highways Plan.*)

Metropolitan Planning Organization (MPO): The organizational entity designated by law (23 U.S. Code 134 and Section 8 of the Federal Transit Act) with lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. An MPO is established by agreement of the Governor and the units of general-purpose local government that together represents 75 percent of the affected population of an urbanized area. Anchorage Metropolitan Area Transportation Solutions (AMATS) is the MPO for Anchorage.

Minor Arterial: A functional subclassification of a type of roadway that provides for medium-length (intra-area), urban trips and serves high-intensity commercial and residential generators. Its primary function is traffic movement. A minor arterial also offers direct access to adjacent land uses, other arterials, collectors, and major residential streets. A minor arterial is generally an undivided, two-directional facility. Minor Arterials are designated in the Official Streets and Highways Plan. (S*ee Arterial and Official Streets and Highways Plan.*).

Model: A computerized set of equations used to forecast traffic volumes and public transit ridership in a future year.

Multimodal: Representing more than one mode of transportation, especially within a system or corridor.

Multimodal transportation planning: Efforts to plan transportation improvements that consider more than one mode of travel; for example, driving, ridesharing, use of public transit, bicycling, walking, and other modes. A multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place, be it by truck, train, bicycle, automobile, airplane, bus, foot, or even a computer modem.

National Ambient Air Quality Standards (NAAQS): National standards for the quality of air. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

National Environmental Policy Act of 1969 (NEPA): Legislation that established a supplemental mandate for federal agencies to consider the potential environmental consequences of their proposals, document the analysis, and make this information available to the public for comment prior to implementation.

National Highway System (NHS): A network of primary highways and ferry routes designated by the Federal Highway Administration, U.S. Department of Transportation, considered most important to interstate travel, national defense, connection with other modes of transportation, and essential to international commerce. The focus of the NHS is the long-range movement of people, goods, and services. This approximately 160,000-mile network consists of the 42,500 miles of the Interstate System, plus other key roads and arterials throughout the United States. In the Municipality of Anchorage, the programming of NHS project funding is handled by the Alaska Department of Transportation and Public Facilities in consultation with Anchorage Metropolitan Area Transportation Solutions. These principle arterials or connections to major transportation terminals include (1) **the Seward Highway** from Fifth Avenue to the southern Municipality of Anchorage (MOA) boundary line near Portage, (2) **the Glenn Highway** (Fifth/Sixth Avenue) from L Street east to the MOA boundary near Knik River; (3) **Minnesota Drive** from Fifth Avenue to its connection with the Seward Highway, (4) **Post Access** from Fifth Avenue north to Hollywood Drive and the north end of the Port of Anchorage, (5) **International Airport Road** west of Minnesota Drive, (6) **Muldoon Road**, (7) **Tudor Road**, and (8) **Boniface Parkway** access to Elmendorf Air Force Base.

Nonattainment area: A designation of the U.S. Environmental Protection Agency indicating that a geographic region has not met the National Ambient Air Quality Standard (NAAQS) for one or more transportation-related pollutants. In Alaska, portions of Anchorage, Fairbanks, and Juneau are so designated.

Non-National Highway System (non-NHS): The portion of the transportation system outside the National Highway System that includes the remainder of the area roadways. The Anchorage Metropolitan Area Transportation Solutions (AMATS) designates the priorities for the non-NHS, based on a project priority process used in the development of the AMATS Needs List.

Official Street and Highway Landscape Plan (OSHLP): The plan that provides guidelines for the inclusion of landscaping along primary transportation corridors for both aesthetics and slope stabilization. The Landscape Improvement Study furnishes additional guidance.

Official Streets and Highways Plan (OS&HP): The plan that identifies the location and functional classification of roadways recommended in the LRTP. The OS&HP is used during land subdivision and development to ensure that right-of-way for planned roads is properly and adequately reserved. Also intended to guide and coordinate high traffic generation development along the appropriate class(es) of roadway.

Operating revenues: Monies used to fund general, day-to-day costs of running transportation systems. For transit, costs include fuel, salaries, and replacement parts; for roads, operating costs involve maintaining pavement, filling potholes, paying worker salaries, and other expenses.

People Mover Route Restructuring Plan. The 2002 Municipality of Anchorage report titled *The People Mover Blueprint: A Plan to Restructure the Anchorage Transit System.* This report, prepared by

RLS and Associates, Inc., presents the results of a comprehensive analysis of the People Mover route structure to identify ways to provide more of a customer focus to the bus system. The recommended route structure will increase public transportation ridership because service will be more frequent, routes will be more direct, new routes will be provided, buses will run earlier and later in the day, transfers will be easier and quicker to make, and schedules will be easier to remember.

Planning: A phase in transportation system development to determine the likely future transportation needs of an area.

Planning and Zoning Commission (P&Z): An appointed Municipality of Anchorage body that, in one of its functions, serves as the official Citizen Advisory Committee to the Anchorage Metropolitan Area Transportation Solutions (AMATS).

Policy Committee (PC): The formal decisionmaking body of Anchorage Metropolitan Area Transportation Solutions (AMATS), which approves final planning and programming documents.

Project Management Manual (PPM): The document presenting municipal policy that guides individuals who are responsible for the development and construction of municipal projects. (S*ee Design Criteria Manual*.)

Programming: A phase in transportation system development when the type and level of resources needed to design and build a project are determined and the scheduling of those resources occur.

Public Involvement Program (PIP): A program identifying the processes and techniques required to be proactive in transportation decisionmaking.

Public Transportation Development Plan (PTDP): A short-term (5-year) program that outlines the intended development of the public transit system for each year during that period. It includes a detailed program of capital equipment needs, system management, and operations.

Record of Decision (ROD). A document issued as the final step in the Environmental Impact Statement process. The ROD identifies the selected alternative, presents the basis for the decision, identifies all the alternatives considered, specifies the "environmentally preferable alternative," and provides information on the adopted means to avoid, minimize, and compensate for environmental impacts.

Road Improvement District (RID): A defined area in which required improvements constructed to local roads must follow requirements as described in Title 21 of the Anchorage Municipal Code. The Municipal Assembly is responsible for approving RIDs and granting any waivers to the standards. (S*ee Local Road and Design Criteria Manual*.)

Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA): Federal legislation that carries on much of the program structure begun under the Intermodal Surface Transportation Efficiency Act of 1991. Expected to be re-authorized in 2005, it provides funding authorizations for highways, safety, and mass transportation from the Highway Trust Fund.

Single-occupancy vehicle (SOV): A vehicle with one occupant, the driver, who is sometimes referred to as a "drive-alone."

State Implementation Plan for Air Quality (SIP): The document describing the strategies necessary to bring nonattainment areas into conformity with the National Ambient Air Quality Standards. The SIP shows how the State of Alaska will meet air quality standards, as required by the 1977 Clean Air Act Amendments.

Statewide Transportation Improvement Program (STIP): A transportation improvement program produced by the Alaska Department of Transportation and Public Facilities (DOT&PF). The Anchorage Metropolitan Area Transportation Solutions (AMATS) holds special status under the Intermodal Surface Transportation Efficiency Act of 1991 **(**ISTEA) for program development. As an urban area with greater than 200,000 population, the Anchorage urban area falls under the Transportation Management Area (TMA) rules. Under ISTEA, AMATS is empowered to determine its own priority for projects and prepare its own Transportation Improvement Program (TIP) based on funding allocated to AMATS within the STIP. In the other 49 states, TMAs are allocated funds based on a statutory formula. ISTEA contains an exception to this requirement for Alaska, in that the

allocation of funds for Alaska TMAs is determined by DOT&PF within the STIP.

Surface Transportation Program (STP): A new categorical funding program created with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). A specific clause found in the ISTEA legislation directs that these funds may be spent on any public road in Alaska, regardless of classification. Of the STP funds, 10 percent must be spent on Transportation Enhancement projects. Funds may be used for a wide variety of purposes, including roadway construction, reconstruction, resurfacing, restoration, and rehabilitation; roadway operational improvement; capital costs for transit projects; highway and transit safety improvements; bicycle and pedestrian facilities; scenic and historical transportation facilities; and preservation of abandoned transportation corridors. The federal funds ratio varies and is either 90.97 percent or 93.4 percent, depending on the specific category of work.

Technical Advisory Committee (TAC): A formal body of representatives from various agencies and interests that reviews transportation planning documents and advises the Policy Committee of Anchorage Metropolitan Area Transportation Solutions (AMATS).

Traffic Code: Anchorage Municipal Code Title 9. (S*ee Anchorage Municipal Code.*)

Trails and Recreational Access for Alaska (TRAAK): A program and component of Governor Knowles' Transportation Initiative (June 1995) established to improve access and recreational opportunities in the state. Administered by the Alaska Department of Transportation and Public Facilities, TRAAK addresses trails, scenic highways, recreational access points, and interpretive facilities. The program is funded primarily with federal dollars from the Surface Transportation Program.

Transit Development Plan (TDP): A short-term (5-year) implementation tool for meeting the goals of the Long-Range Transportation Plan.

Transit Facilities Design Guidelines: The document specifying guidelines and recommended methodology for the location and design of bus stops and other transit facilities within the Municipality of Anchorage. Items addressed include transit vehicle dimensions, location and design of bus pullouts, and other transit amenities.

Transportation demand management (TDM): A general term for strategies that result in more efficient use of transportation resources. Representative low-cost ways to reduce demand by automobiles on the transportation system include programs to promote telecommuting, flex time, and ridesharing.

Transportation Enhancement: A category of projects defined in the Intermodal Surface Transportation Efficiency Act as involving "provisions of facilities for pedestrians and bicycles; acquisition of scenic easements ... or historic sites; scenic or historic highway programs; landscaping and other scenic beautification; historic preservation, rehabilitation and operation of historic highway buildings, structures, or facilities (including railroad facilities); preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian or bicycle trails); control and removal of outdoor advertising, archaeological planning and research; and mitigation of water pollution due to highway runoff." Transportation Enhancement projects have been of particular interest to the general public and users of nontraditional transportation-related facilities.

Transportation Equity Act for the 21st Century (TEA-21): The most recent comprehensive federal transportation enabling legislation, enacted on June 9, 1998. This act retains and expands many of the programs created in 1991 under the Intermodal Surface Transportation Efficiency Act (ISTEA). It reauthorizes federal surface transportation programs for 6 years (1998–2003) and significantly increases overall funding for transportation.

Transportation Improvement Program (TIP): A 3-year capital program of transportation projects, focused on federal funding for roadway, trails, and transit capital projects for the urbanized area. The TIP covers federal, state, and local funding for roadway, transit, trails, and enhancement projects. The document includes new projects, as well as previously funded projects that require additional effort.

Transportation Equity Act: A Legacy for Users of 2005 (SAFETEA-LU): Legislation rreauthorizing the federal highway and transit programs formerly authorized under Transportation Equity Act for the 21st Century (TEA-21).

Transportation Management Area (TMA): An area subject to special federal requirements for congestion management systems, project selection, and certification. These special requirements are for urbanized areas having a population of more than 200,000.

Transportation system management (TSM): A congestion management approach that focuses on identifying improvements to new and existing facilities of an operational nature. The techniques rely on better management and operation of transportation facilities to improve traffic flow and safety. Examples include traffic signal enhancements and deployment of intelligent transportation system components.

Urban Design Commission (UDC): A group whose members review and make recommendations for public facilities such as street and roadway landscape improvement projects. The members provide advice on urban design matters.

Unified Planning Work Program (UPWP): Federally required document outlining the activities to be undertaken in support of federally funded transportation projects.

U.S. Department of Transportation (USDOT): The federal cabinet-level agency that is responsible for highways, mass transit, aviation, and ports and implements the nation's overall transportation policy. Headed by the Secretary of Transportation, the USDOT includes the Federal Highway Administration and the Federal Transit Administration, among others.

U.S. Environmental Protection Agency (EPA): The federal agency that reviews air quality conformity analysis and advises the Federal Highway Administration and Federal Transit Authority on approval of a conformity finding.

APPENDIX B. Environmental Justice Evaluation

Introduction

The U.S. Department of Transportation has issued a final order on Environmental Justice. This final order requires that metropolitan planning organizations, like Anchorage Metropolitan Area Transportation Solutions (AMATS), identify and address disproportionately high and adverse public health and environmental effects of transportation policies, programs, and activities on low-income and minority populations. The purpose of this appendix is to conduct such an evaluation of the 2025 Long-Range Transportation Plan (LRTP) (prepared in 2005). The analysis contains three parts: (1) analysis of the transportation needs of low-income and minority populations; (2) determination of whether the benefits and burdens of the existing and proposed transportation system investments (contained in the LRTP) are distributed equitably among target (low-income and minority) and non-target population within Anchorage; and (3) analysis of the spatial relationship between minority and low-income areas and existing and future employment concentrations to determine whether there is a potential spatial mismatch between employment and these populations that needs to be addressed in the LRTP.

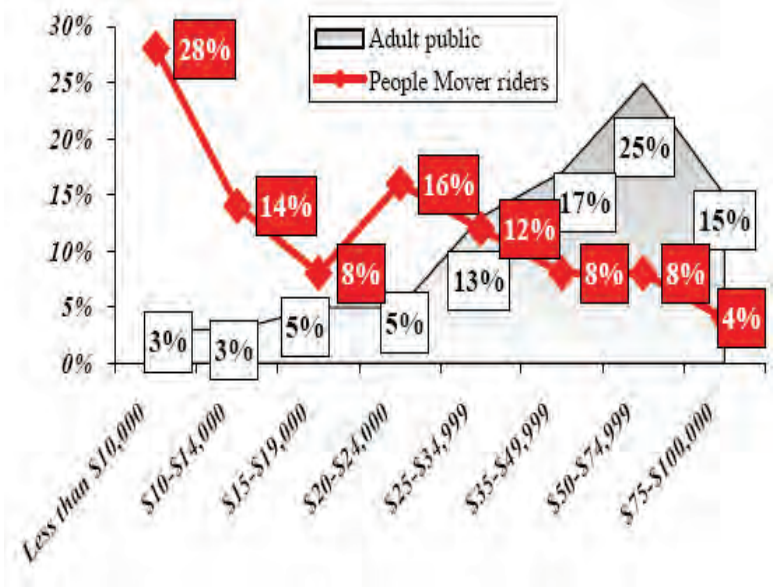
Transportation Needs of Low-Income and Minority Populations

From a review of the 2000 U.S. Census and locally gathered survey information, it appears that low-income and minority populations are disproportionately dependent on the public transportation system. According to 2000 Census data, households that fall in the category of less than 80 percent of the median income are twice as likely to own no vehicle. (Thirteen percent of these households do not own a vehicle, compared to 6.2 percent of the entire population.) The percentage of households without a vehicle is much higher among the very poor. (Twenty-eight percent of households that earn less than $20,000 per year own no vehicle.)

It is not surprising that as a result of the low vehicle ownership, low-income and minority populations constitute a higher percentage of bus riders.

According to a 2001 telephone survey conducted by People Mover, there is a wide difference between the household income of People Mover riders and the general adult public. Although only 3 percent of the general adult public reported income of less

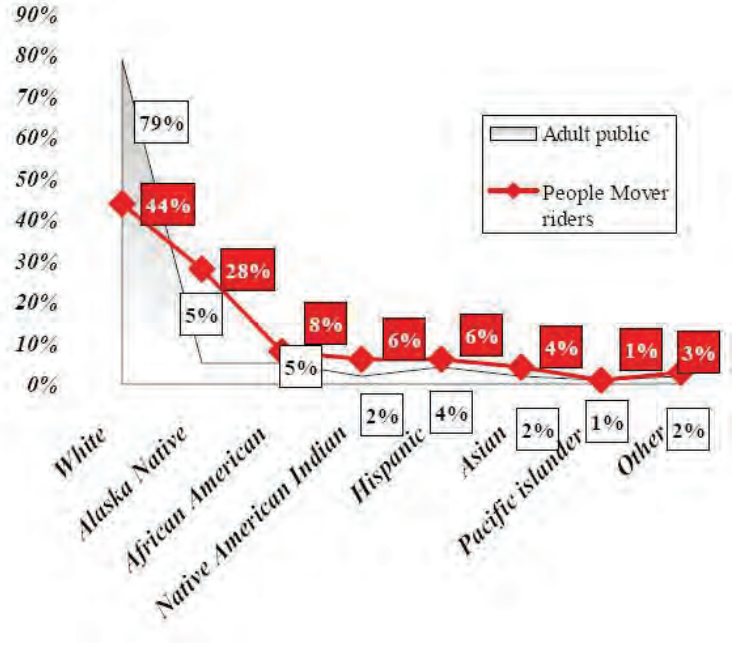
Figure 1. Comparison of People Mover Riders' Income to that of General Adult Public in Anchorage Telephone Sample



Sources: People Mover onboard survey, August 2001, and telephone household survey, July 2001

than $10,000, 28 percent of People Mover riders reported incomes at that low level (see Figure 1). There is also a substantial difference in the ethnic composition of People Mover riders and the general adult public. Only 44 percent of People Mover riders self-identify as "white" while 79 percent of the adult public identifies itself as "white." In addition, 28 percent of the riders surveyed identify themselves as "Alaska Natives" while only 5 percent of the general adult public population identifies itself as Alaska Native (see Figure 2).

Figure 2. Comparison of People Mover Riders' Ethnic Origins to those of General Adult Public in Anchorage Telephone Sample



Sources: People Mover onboard survey, August 2001, and telephone household survey, July 2001

Similarly, all other minority ethnic groups in the general population form a somewhat greater proportion of the People Mover ridership.

The demonstration of a higher dependence on public transportation by low-income and minority populations should not be construed to mean that these groups do not benefit from highway improvements. After all, 68 percent of households with income less than $30,000 drive alone to work, compared to 76 percent of all Anchorage households (2000 U.S. Census). Nevertheless, it is apparent that low-income and minority populations will receive a substantially higher benefit from bus service improvements compared to other non-target populations. (Of households with incomes less than $30,000, 4.3 percent take the bus to work, compared to 1.6 percent of all households.)

Benefits and Burdens of LRTP Projects

The LRTP contains many recommendations for transportation improvements, including highway, transit, pedestrian, bicycle, and transportation demand management strategies. Recommendations that have the greatest impact on low-income and minority populations are typically found in the road and public transportation sections of Chapter 8.

Public Transportation

The People Mover bus transit system is the primary means of public transportation available to residents of Anchorage. The LRTP makes many recommendations to improve the existing bus system, including the following:

- Transit service should provide direct connections between homes and key employment and commercial districts.
- The top transit routes that produce the highest ridership—Routes 1, 3, 7, 9, 15, 36, 45, and 102—should move to more frequent service, 15-minute intervals in morning and afternoon commute periods and every 30 minutes in other hours.
- Other routes should operate at 30-minute frequency all day.
- Bus Rapid Transit commuter service on the Glenn Highway during peak periods should be implemented to provide 6- or 10-minute service to ease congestion and deliver riders to employment centers.
- Transit service should be timed to enable easy connections (timed transfers) between routes.
- Routes, the number of stops, and placement of stops should be optimized for convenience and faster service.
- Modern buses should maximize comfort, efficient loading, and accessible design.

- Attractive weather-protective transit hubs with traveler information should be incorporated to provide more user friendly amenities.
- Bus stops should be clearly marked and have sidewalks and pathways connecting them to businesses and neighborhoods.
- Sidewalk snow clearance for transit access should be a high priority in winter months.
- Traffic signal preemption should be implemented to enable buses to increase speed of travel.
- Monthly passes, electronic ticketing, and easy-to-remember schedules should be part of transit service.
- Traveler information should be improved to make transit use easier, faster, and more attractive.
- Employers should be encouraged to incorporate transit incentive programs to reduce automobile dependency

The analysis of the transportation needs of low-income and minority populations discussed in the previous section indicated that the recommended improvements to the bus system listed above will deliver important benefits to low-income and minority populations in Anchorage. Of course, improvements to bus frequency and service must be accessible to the target population to be beneficial.

To determine the accessibility of the existing transit system to the target populations, the existing fixed route system was overlaid on maps of income and minority statistical data. Figure 3 shows the AMATS area's fixed-route transit service network along with the percentages of households that fall below 80 percent of the median Anchorage income. Figure 4 shows the same fixed-route service network along with the percentages of minority households. The maps demonstrate that areas of low-income and minority populations are currently well served by the bus route network. A more detailed analysis of 2000 Census data revealed that 72 percent of the minority population lives within 1/4 mile of a transit route, compared to 56 percent of the total population. (Good access to transit is generally considered to be 1/4 mile distance from a transit route.)

The transit system improvements recommended in the LRTP build on the existing bus route structure. The major change called for is to increase the frequency of service on the seven most productive routes from 30 to 15 minutes. As Figures 5 and 6 demonstrate, all seven routes (with the possible exception of Route 102) are located in areas that predominately serve low-income and minority populations.

Highway Improvements

Figures 7 and 8 show the recommended LRTP highway projects overlaid on maps showing low-income and minority areas. Most of the highway projects identified in the LRTP would have minimal impacts on adjacent neighborhoods because they either traverse currently vacant land (Dowling Road extension from Lake Otis to Abbott Loop extended) or are expected to be accommodated within the existing right-of-way (Seward Highway expansion from four to six lanes between 36th Avenue and Rabbit Creek Road).

An exception to the above statement is the highway-to-highway connection linking the existing Glenn Highway, where the controlled access ends at Bragaw Street, with the existing Seward Highway, for which controlled access ends at 36th Avenue. Although the exact alignment of the highway-to-highway connection has not been identified, it likely would follow the general corridor identified in Figures 9 and 10. The illustration of the alignment for the new freeway section shows that it would bisect an area containing higher-than-average low-income and minority concentrations.

The highway-to-highway connection would introduce some benefits as well as some potential burdens for the adjacent neighborhoods. The area located between the existing highways currently experiences some of the worst congestion in Anchorage. Higher-than-average traffic crashes occur because of increased congestion. Cut-through traffic trying to avoid the congested bottlenecks is also cited as a major problem in the adjacent neighborhoods. The construction of the highway-to-highway connection is expected to take a significant amount of traffic (about 100,000 trips per day) off the surrounding arterial and collectors streets, reducing crashes and cut-through traffic problems.

A substantial effort during LRTP development investigated potential ways to mitigate the adverse impacts of the highway-to-highway project on

Figure 3. Current Bus System Routes and Concentrations of Low-Income Households

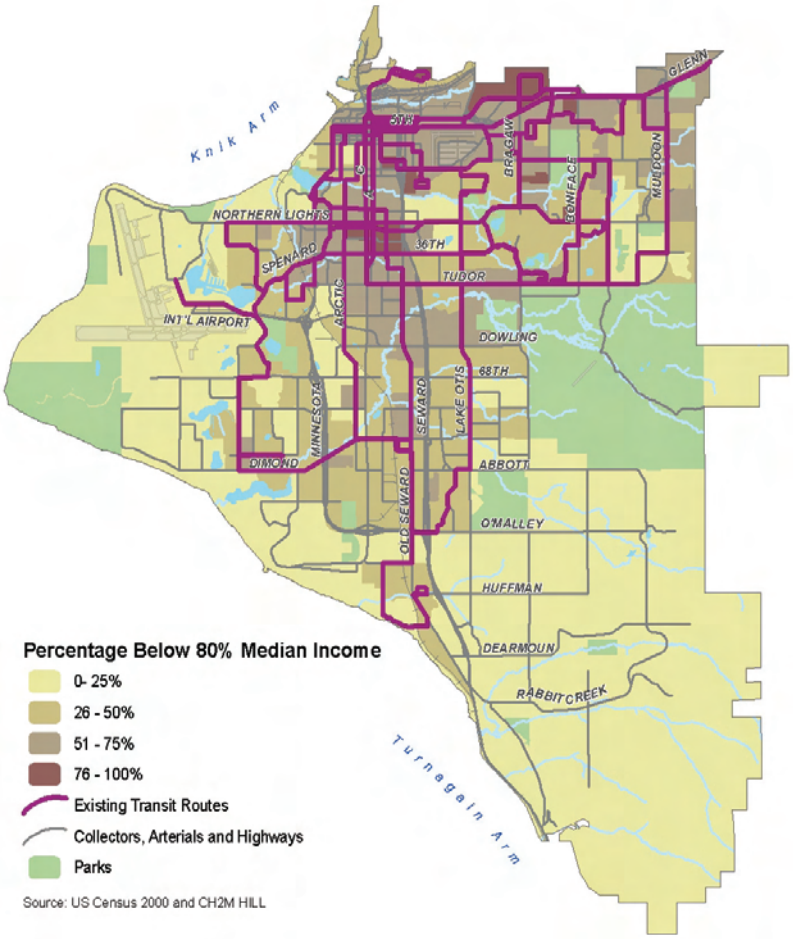


Figure 4. Current Bus System Routes and Concentrations of Minority Households

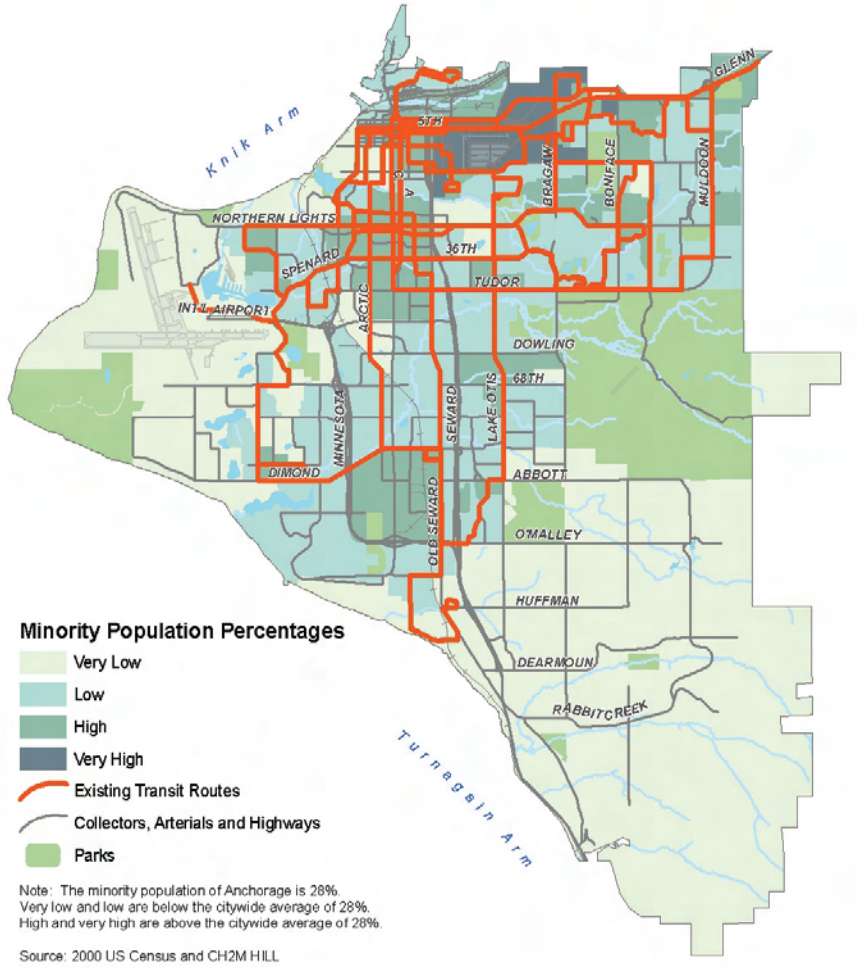


Figure 5. Recommended Bus System Routes and Concentrations of Low-Income Households

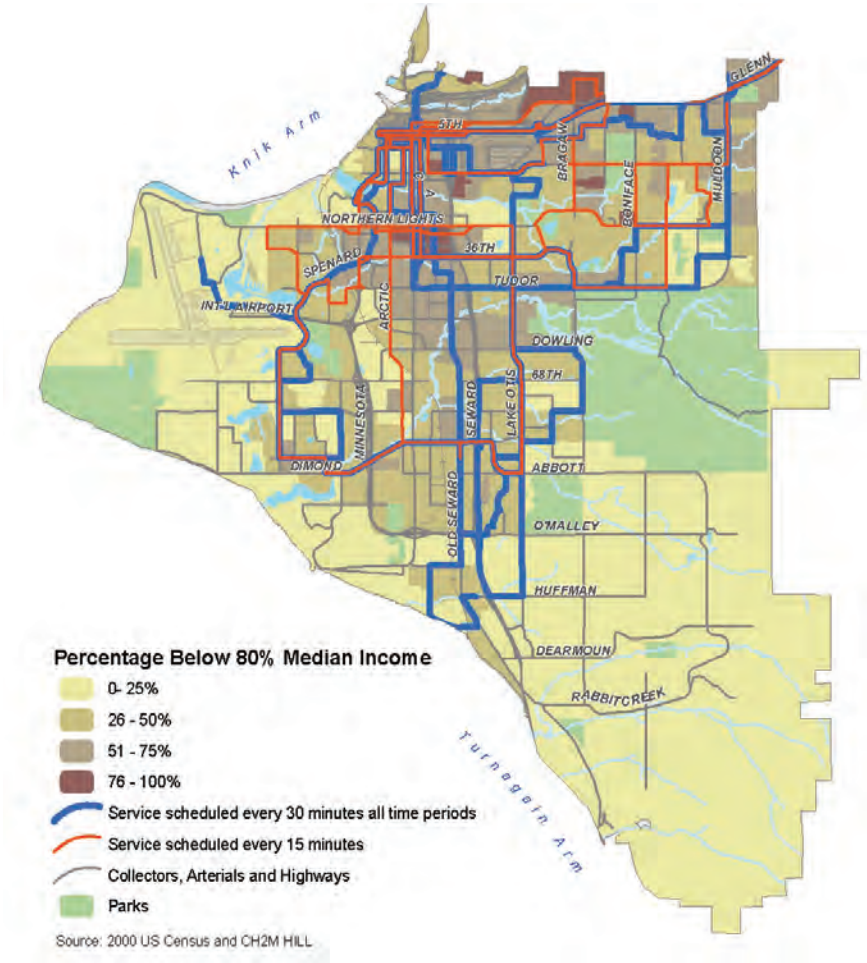


Figure 6. Recommended Bus System Routes and Concentrations of Minority Households

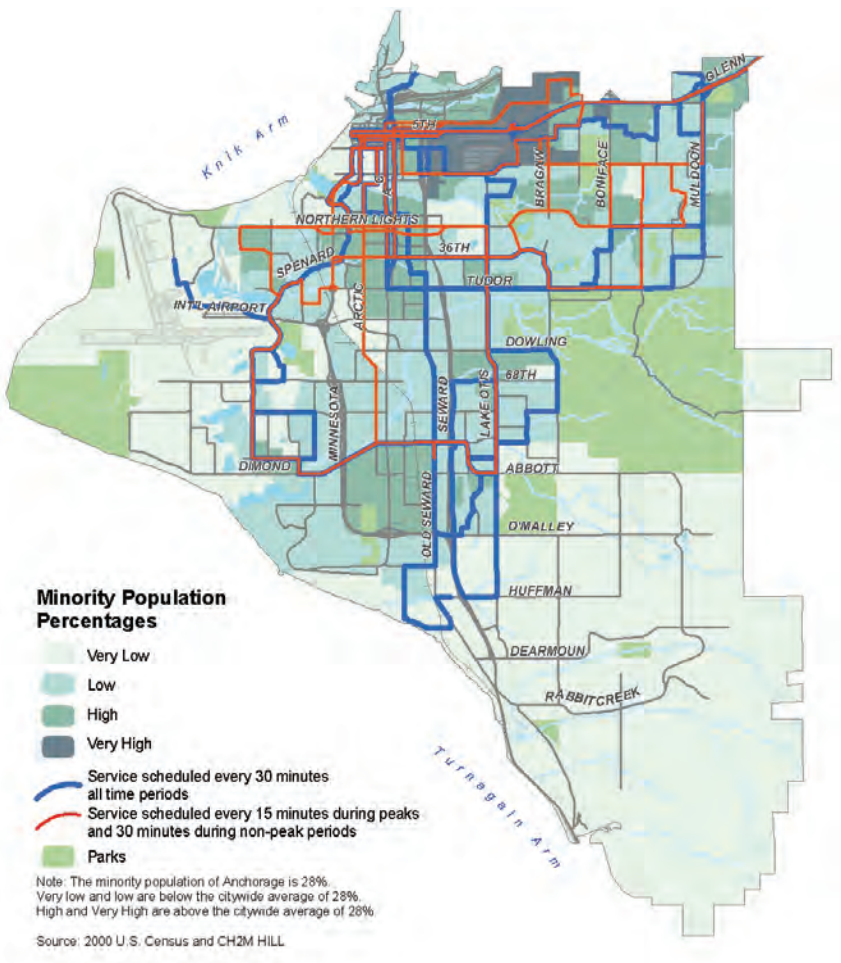


Figure 7. Recommended Highway Improvements and Concentrations of Low-Income Households

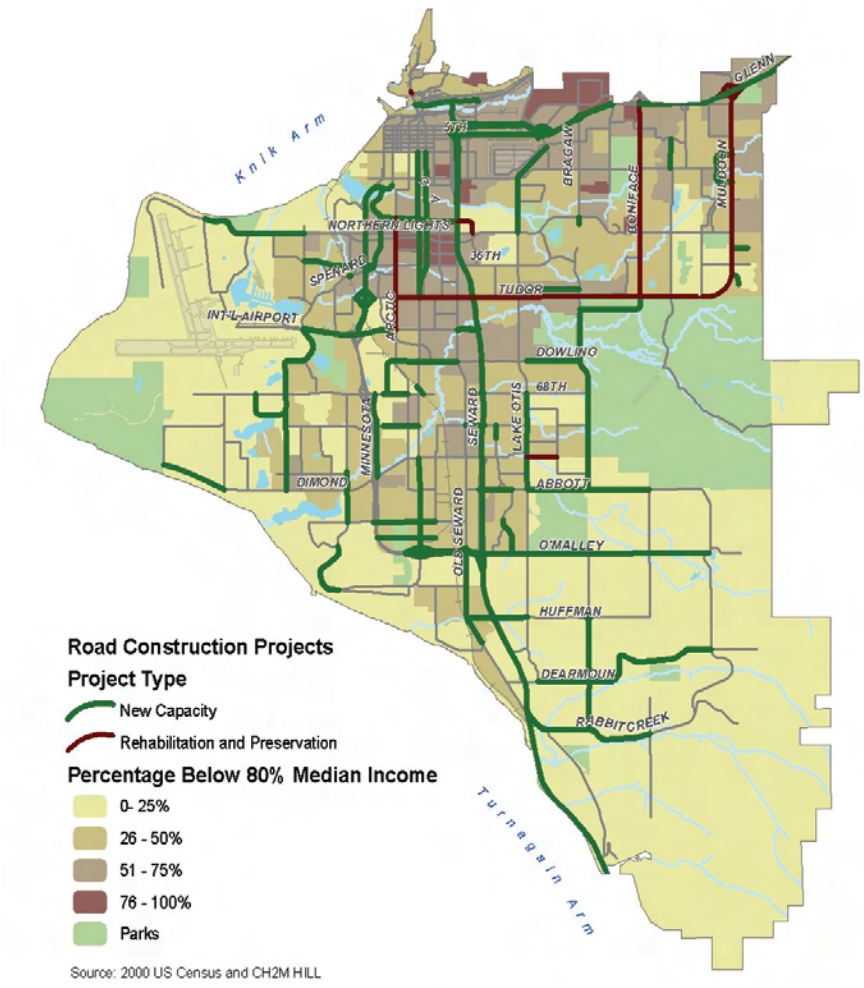


Figure 8. Recommended Highway Improvements and Concentrations of Minority Households

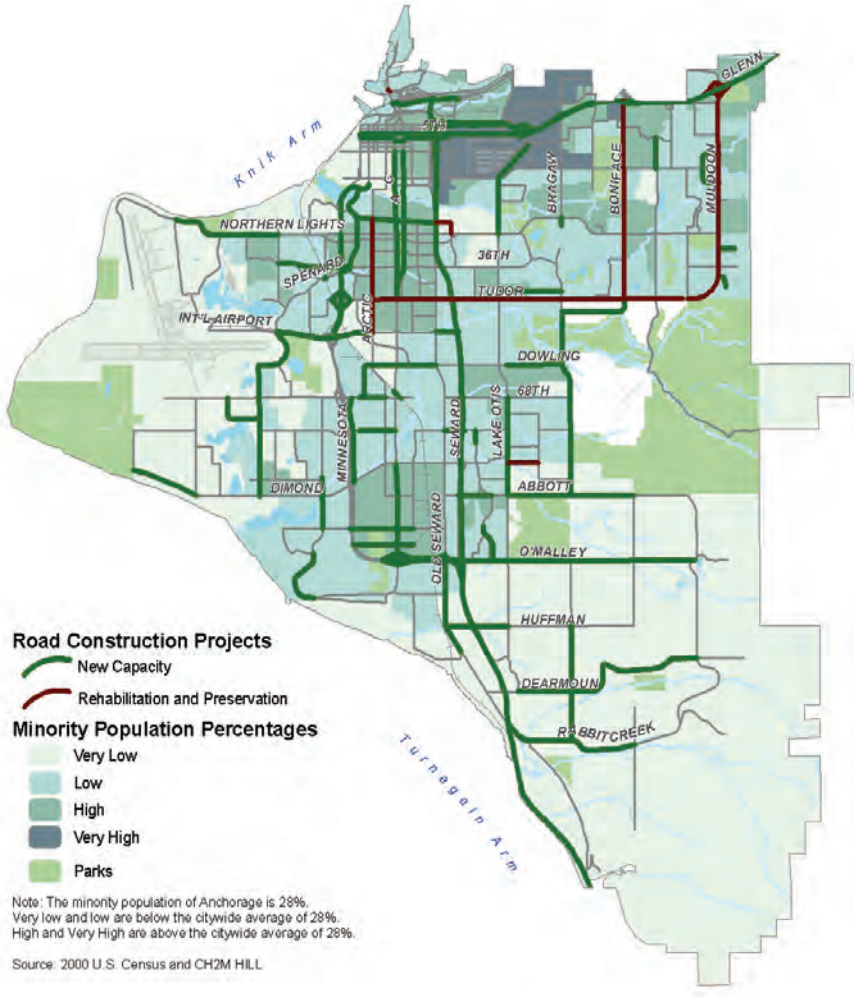
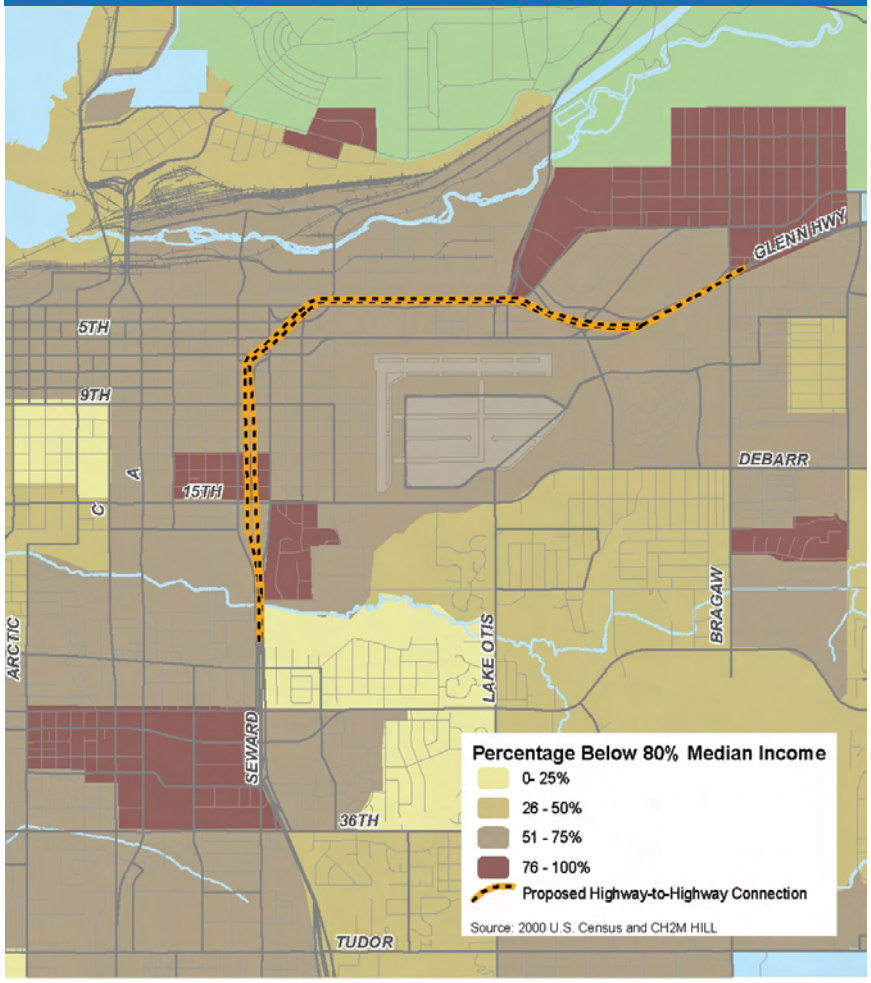
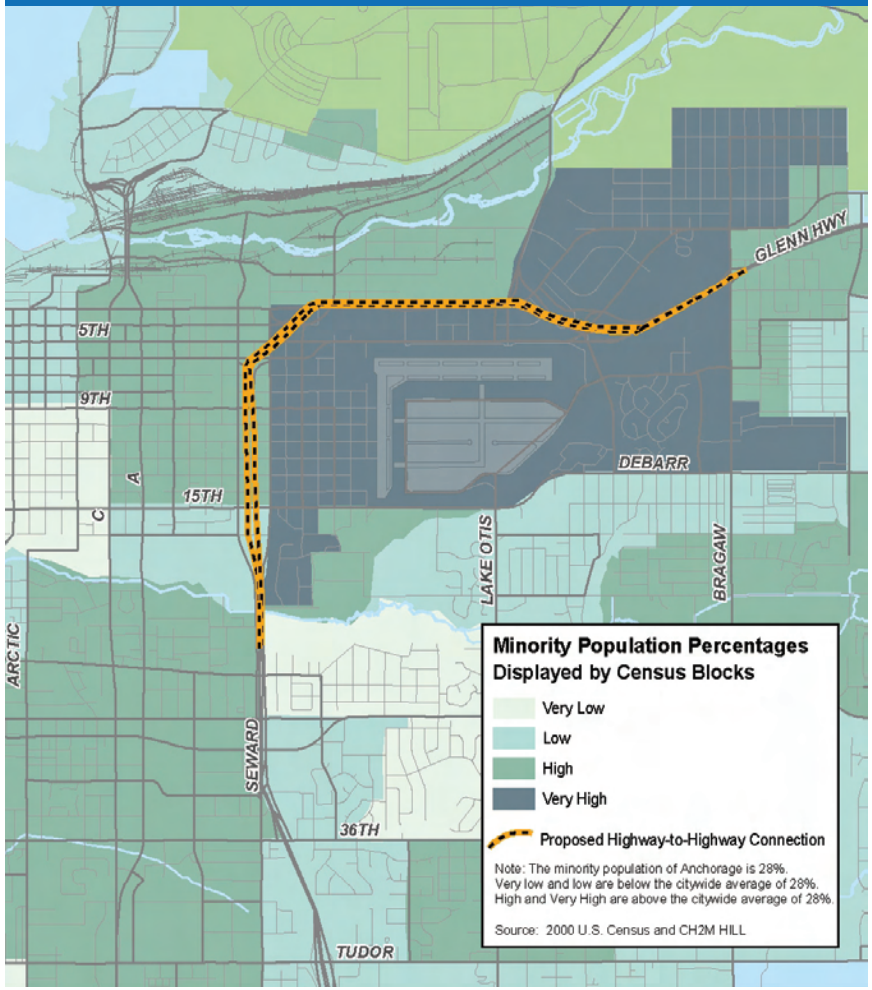


Figure 9. Proposed Highway-to-Highway Connection and Concentrations of Low-Income Households



Note: The exact route of the highway-to-highway connection has not been determined.

Figure 10. Proposed Highway-to-Highway Connection and Concentrations of Minority Households



Note: The exact route of the highway-to-highway connection has not been determined.

adjacent neighborhoods. Members of the LRTP planning staff met several times with the community councils of these neighborhoods to discuss these issues. (See the LRTP public involvement summary available on the website at www.muni.org/transplan.)

Several strategies resulting from this work have been recommended for inclusion in the project scope. Depressing the highway through the majority of the corridor is one of the main strategies designed to mitigate noise and visual impacts. The freeway would also be covered at strategic locations, allowing opportunities to develop parks or open spaces on top of the freeway. Extensive use of bridges is expected to improve pedestrian access and reconnect neighborhoods currently divided and isolated. After the connection is complete, streets that are now heavily traveled (such as Ingra and Gambell streets) could be converted into pedestrian-friendly main streets.

Inevitably in a project such as the highway-to-highway connection, low- to moderate-income housing would be lost. It is the intent of AMATS to actively explore replacing low- and moderate-income housing through the construction of new housing utilizing the federal housing provisions of the Uniform Relocation and Real Property Acquisition Policy Act of 1970.

Location of Existing and Future Employment in Relation to Areas of Low-Income and Minority Concentrations

It is expected that future job growth will continue to gravitate toward the areas of existing job concentrations such as Downtown, Midtown, and the University-Medical District. Existing (2002) employment is shown in Figure 11. If the map of projected 2025 job locations (Figure 12) is compared to the maps of low-income and minority household concentrations, it becomes apparent that there is no problem with respect to the potential spatial mismatch between future employment centers and areas with high concentrations of low-income and minority populations. In fact, low-income and minority areas probably have better access to areas of high employment growth than do higher-income areas such as Chugiak-Eagle River and the Hillside.

One potential area of concern is the Ted Stevens International Airport. According to the University of Alaska Anchorage, Institute of Social and Economic Research, the airport is expected to be a major engine of economic growth in the next few decades. Currently only one bus route serves the airport (Route 7), and it only stops at the airport once an hour. (Every other bus on this route skips this stop.).

Conclusion

On the basis of the analysis described above, AMATS has determined that the recommendations contained in the 2025 LRTP do not have a disproportional impact on areas of high concentration of low-income and minority populations. Furthermore, the LRTP duly considers the transportation needs of low-income and minority populations and provides many recommendations that will substantially benefit these populations.

Figure 11. 2002 Employment

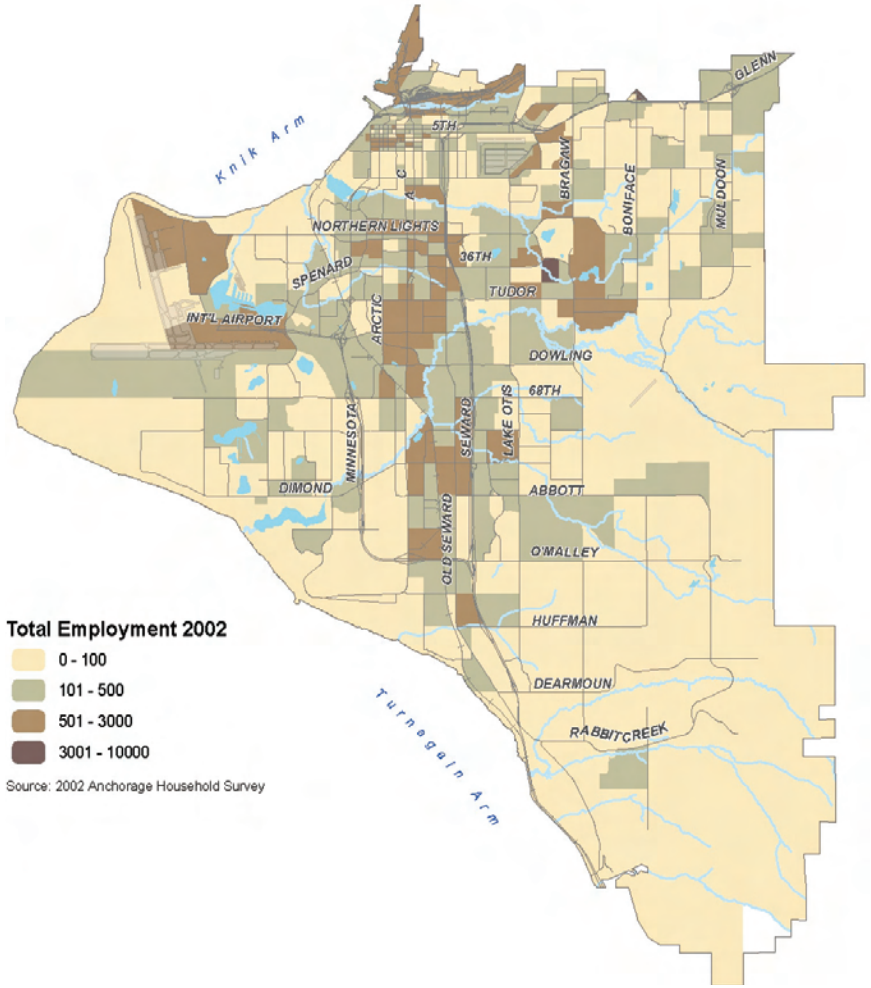
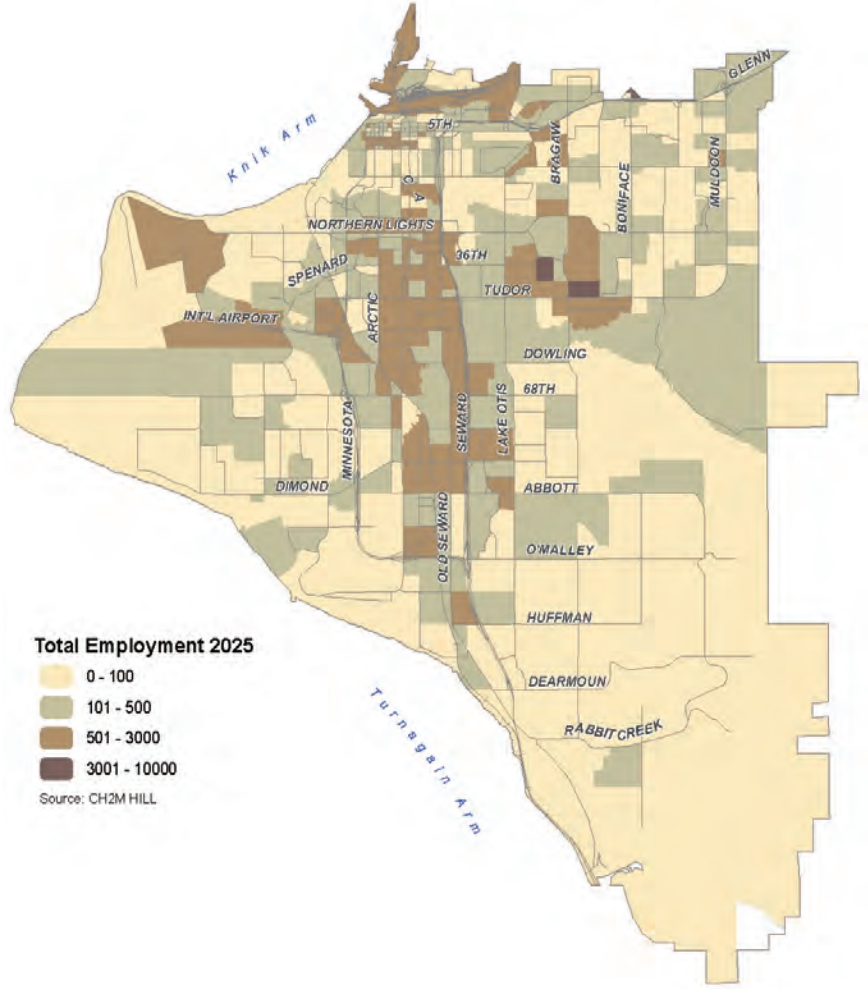


Figure 12. Projected 2025 Employment



APPENDIX C. Street Typology Additions to Functional Classifications

General Overview

Functional street classifications encompass both the design characteristics of streets and the character of services that the streets are intended to provide. The functional street classifications in the Official Streets and Highways Plan of the Municipality of Anchorage (MOA) and the Coordinate Data System Log of the Alaska Department of Transportation and Public Facilities (DOT&PF) identify the primary function and use of the roadway for vehicular travel. Traditionally, functional classification forms hierarchies of streets ranging from those that are primarily for travel mobility (arterials) to those that are primarily for access to adjacent property (local or residential streets).

The Long-Range Transportation Plan (LRTP) recognizes and retains most of the MOA existing classification system categories adopted by either the MOA or DOT&PF for freeways, expressways, arterials, collectors, and local streets, but recommends refining the designations of some streets.

It has become clear since adoption of the *Anchorage 2020: Anchorage Bowl Comprehensive Plan* (Anchorage 2020) (prepared by the MOA in 2001) that the traditional functional classification system needs to be supplemented to reflect emphasis on a more balanced street function that considers land use and includes all users—pedestrians, bicyclists, transit users, and motorists. The typology discussed in this report is intended to augment the traditional functional classification by expanding the street typology system to include the following designations:

- Residential street
- Main street
- Transit street
- Commercial street
- Industrial street
- Mixed use street
- Park land street
- Institutional district street
- Low-density residential street

As described, the functional classification of a street broadly defines its design and operational characteristics as they relate primarily to the movement of motor vehicles. By contrast, the street typologies further refine street designs by relating them to the adjacent land uses and their functions for other users—pedestrians, bicyclists, and transit riders. Street design based solely on the traditional functional classification often neglects other modes of travel. The design of a street, its intersections, sidewalks, and transit stops should reflect the adjacent land uses because the type and intensity of the adjacent land use directly influences the level of use by other modes. Table 1 summarizes street typologies.

The street typologies attempt to strike a balance among functional classification, adjacent land use, and the competing travel needs and uses. Each street typology prioritizes various design elements by looking at factors related to both the adjacent land uses and the functional classification. Where sufficient public right-of-way exists, all design elements may be accommodated. Within constrained public right-of-way, however, trade-offs between priority design elements are required to balance the function and needs of various travel modes.

Designing streets to accommodate larger trucks will involve tradeoffs with streetscapes that are pedestrian-oriented, such as those within mixed-use areas. The tradeoffs will be resolved during the design public process by using context-sensitive design principles.

Table 1. Street Typology Summary

Type of Street	Functional Class	Primary Elements	Secondary Elements	Traffic Management Elements
Residential	Collector, arterial	Sidewalks	Number and width of travel lanes (especially collector and local streets)	Medians
		Tree lawns		On-street parking
		On-street parking		Street trees
		Landscaped medians		Narrower travel lanes
		Bike lanes on designated bicycle routes		Traffic circles and roundabouts
				Reduced pedestrian crossing distances at intersections, using curb extensions, traffic islands, and other measures
				Diverters
Commercial	Arterial	Number and width of travel lanes	Pedestrian facilities	Medians
		Medians	Bicycle facilities	Consolidated driveways
		Transit accommodations	Tree lawns	Synchronization of traffic signals
			Two-way center left-turn lanes	Narrower travel lanes
			On-street parking	
Industrial	Collector, arterial	Wider travel lanes	Medians	Parking restrictions
		Attached sidewalks	Bicycle lanes	Wider turn radius at intersections and access points
		Wider turning radius at intersections	On-street parking	Acceleration and deceleration lanes
			Number of lanes	
			Tree lawns	
Main Streets	Collector, arterial	Wide sidewalks with transit access and pedestrian plazas	Medians	Narrower travel lanes
			Width and number of travel lanes (for collector and local streets)	Alternative paving material
		Bicycle facilities		Tree planters in parking lane
		Curb extensions		On-street parking
		Tree lawns		Reduced pedestrians crossing distances at intersections, using curb extensions, traffic islands, and other measures
		On-street parking		Raised intersections
				High-visibility crosswalks

Table 1. Street Typology Summary

Type of Street	Functional Class	Primary Elements	Secondary Elements	Traffic Management Elements
Mixed-Use Streets	Collector, arterial	Wide sidewalks with transit access Bicycle lanes on designated bike routes Other bicycle facilities Tree lawns On-street parking Transit shelters and facilities	Number and width of travel lanes (on collector and local streets Medians	Landscaped medians On-street parking Street trees Narrower travel lanes Reduced pedestrian crossing distances at intersections, using curb extensions, traffic islands, and other measures
Transit	Arterial	Bicycle lanes on designated bike routes Tree lawns Medians Transit shelters and facilities Sidewalks	Number and width of travel lanes	Landscape medians Street trees High visibility crosswalks
Park Land	Collector, arterial	Bicycle lanes on designated bike routes Retention of natural vegetation to the extent possible Separated bicycle paths where designated	Width and number of travel lanes Design speed (horizontal and vertical curves do not need to be designed for higher speeds)	Narrower travel lanes and shoulders Grade separated bike and pedestrian crossings
Institutional District	Collector, arterial	Bicycle lanes on designated bike routes Tree lawns Extensively landscaped medians Sidewalks Transit shelter and facilities	Width of travel lanes	Landscaped medians Street trees Narrower travel lanes Reduced pedestrian crossing distances at intersections, using curb extensions, traffic islands and other measures
Low-Density Residential	Collector, arterial	Bicycle lanes on designated bike routes Separated bike trails where designated Retention of natural vegetation	Width and number of travel lanes	Narrower travel lanes

Functional Classification Descriptions

The functional classification system is developed with recognition that individual streets do not act independently. Streets form a network that consists of streets that work together to serve travel needs that are local, citywide, and regional.

Freeways

The term "freeway" means a limited-access, high-speed road with grade-separated interchanges. The freeway has only one function: to carry traffic. These streets serve more than 40,000 trips a day. They should be built to freeway design standards with full-grade separations of intersecting streets. A freeway can be a major barrier separating land uses on one side from those on the other as well as dividing neighborhoods. Careful attention should be given to all details related to freeway design. Features might include depressing and covering the facility through intensely urbanized areas and providing noise barriers and landscaping to act as a buffer and improve aesthetics.

Expressways

An expressway is commonly defined as a divided arterial highway for through traffic with full or partial control of access and with intersections either at grade or grade separated. Expressways typically serve more than 20,000 trips per day and do not have the full control of access that characterizes freeways.

Arterials

Arterials are designed to provide a high degree of mobility and generally serve longer vehicle trips to, from, and within urban areas than are served by collectors or residential streets. The arterial system interconnects major urban elements such as the Central Business District, industrial facilities, large urban and suburban commercial centers, major residential areas, and other key activity centers.

Movement of people and goods, also known as "mobility," rather than access to adjacent land uses, is the primary function of an arterial street. Posted speed limits on arterial facilities generally range between 30 and 50 miles per hour (mph), varying according to the type of area being served. The lower end of the speed range is usually applied in higher-density employment and business areas, and higher speeds are found in outlying areas. Traffic volume and capacity of an arterial street depend, in part, on the number of through and turning lanes, signalization, the number of driveways and access points, and the volume of bus and truck traffic. The volumes and capacity of arterials can range from 10,000 vehicles per day on a two-lane arterial to 75,000 vehicles on a six-lane arterial.

With an emphasis on mobility, an arterial facility is generally designed to accommodate passenger cars, trucks, and buses. Bicycle facilities may be provided. Pedestrian facilities are always provided, but the width of these facilities varies depending on adjacent land use and the level of pedestrian activity.

Spacing of arterials varies depending on the following area types: 1 mile apart in low-density residential areas, 1/2 mile apart in high-density residential areas, 1/4 mile apart in commercial and industrial districts, and 1/8 mile apart in the Central Business District (Downtown).

Collectors

Collectors are designed to provide a greater balance between mobility and land access within residential, commercial, and industrial areas compared to that afforded by arterials. The composition of a collector facility depends largely on the density, size, and type of abutting development.

Posted speed limits on collector facilities generally range between 25 and 35 mph. Traffic volume and capacity can range from 2,000 to 10,000 vehicles per day. Emphasizing balance between mobility and access, a collector facility is designed to better accommodate bicycle and pedestrian activity while still serving the needs of the motoring public.

The spacing of collectors varies depending on the following area types: 1/2 mile apart in low-density residential areas, 1/4 mile apart in high-density residential areas, and 1/8-mile apart in commercial and industrial areas and the Central Business District.

Street Typology Descriptions

The following descriptions of the six street typologies identify the primary and secondary elements to include in the street cross section and examples of traffic management elements that may be applied.

Residential Streets

Residential streets serve two major purposes in Anchorage's neighborhoods. As arterials, residential streets balance multimodal mobility with land access. As collectors, residential streets are designed to emphasize walking, bicycling, and land access over mobility. In both cases, residential streets tend to be more pedestrian-oriented than commercial streets.

Residential streets generally consist of two to four travel lanes, but place a higher priority on pedestrian- and bicycle-friendliness than on automobile mobility.

Commercial Streets

The most prevalent commercial streets are the strip commercial arterials. Strip commercial arterials typically serve commercial areas containing numerous retail centers with buildings that are set behind parking lots. Because of the nature of these areas, strip commercial arterials have many intersections and driveways to provide access to adjacent businesses. Historically, this type of street is often highly automobile-oriented and tends to discourage walking and preclude bicycling. Mid-block crosswalks are rare, and ample on-street parking is infrequent because of the provision of off-street parking lots serving adjacent businesses.

Commercial streets typically provide four to six lanes divided by a landscaped median. Under certain conditions, a commercial street may have a continuous two-way left-turn lane in the center. Commercial streets are designed to balance traffic mobility with land access. Because of the frequency of intersections and land access points on commercial streets, however, they often become congested.

Industrial Streets

Industrial streets are designed to accommodate significant volumes of large vehicles such as trucks, trailers, and other delivery vehicles. Because these areas are relatively low in density, bicycle and pedestrian travel is more infrequent than in other types of neighborhoods, but still should be accommodated.

Industrial streets typically consist of two to four travel lanes, which are generally wider—15 to 20 feet wide—to accommodate movement of larger vehicles. Bike lanes and on-street parking are rare on industrial streets. Sidewalks are provided, but are generally narrower than in other higher-density commercial and retail areas of Anchorage.

Main Streets

Main streets serve medium-intensity retail and mixed land uses as defined by the Town Center designations in Anchorage 2020. Unlike commercial streets, main streets are designated to promote walking, bicycling, and transit within attractive landscaped corridors. Generally, main street activities are concentrated along a two- to eight-block area, but may extend farther depending on the type of adjacent land uses and the area served.

Main streets generally consist of two to four travel lanes. On-street parking is usually provided to serve adjacent land uses. Curb extensions within the parking lane can accommodate tree wells creating, in combination with a tree lawn, a double row of street trees. To further create a pedestrian-friendly atmosphere, main streets have wide sidewalks, 10 feet or greater, depending on the expected pedestrian traffic, street furniture, outdoor cafes, plazas, and other features.

Transit Corridors

Transit streets are located in medium- to high-intensity land uses as defined by the transit-supportive development corridor designation in Anchorage 2020. Alternative modes of travel are emphasized on transit streets with increased use of pedestrian, bicycle, and transit design elements. Transit streets typically consist of two to four travel lanes, and additional lanes along transit streets should be considered only as a last resort. Expansion of parallel routes should be first examined as a possible solution to congestion problems. If this alternative expansion to handle capacity is not possible, negative impacts on the pedestrian environment should be mitigated to the maximum extent feasible (see page 55 of Anchorage 2020).

Improvements such as landscaped medians and tree lawns are desirable to make transit streets more attractive to pedestrians and transit users. Most transit streets have limited commercial land uses and therefore do not require on-street parking or exceptionally wide sidewalks.

Mixed-Use Streets

Mixed-use streets are located in areas characterized by a mix of high-intensity commercial, retail, and residential areas with substantial pedestrian activity as defined by the employment and redevelopment designation in Anchorage 2020. Alternative modes of travel are emphasized on mixed-use streets with increased use of pedestrian, bicycle, and transit design elements. Mixed-use streets typically consist of two to four travel lanes.

Improvements such as trees, lawns, and street furniture are desirable to make mixed-use streets more attractive for pedestrians. Mixed-use streets frequently provide on-street parking and wide sidewalks, depending on the type and intensity of adjacent commercial land uses.

Park Land Street

Park land streets are traffic corridors through or along park land or other natural open space. They are designed to minimize disturbance to the adjoining natural setting, through landscaping and alignments that reduce noise, air pollution, and visibility from those adjoining spaces. Park land streets generally carry low to moderate amounts of traffic and incorporate alignments to reveal scenic areas. Natural vegetation is typically retained where possible so that the park land street traveler will feel engaged with the natural setting. Grade-separated crossings are provided for recreationists, and measures are taken to prevent wildlife collisions.

Institutional District Street

Institutional district streets are expected to primarily serve the University/Medical District. The land use in this area is distinguished by medium- to high-density university and hospital campuses interspersed with large open spaces. Institutional district streets are designated to promote walking, bicycling, and transit within an attractive parkway type of landscaped corridor.

Institutional district streets generally consist of two to four travel lanes with no on-street parking. Improvements such as trees, lawns, landscaped medians, and enhanced transit stops are desirable to make these streets more attractive and blend in with the campus environment. Sidewalks are provided, but are generally narrower than in other higher-density commercial and retail areas of Anchorage because an extensive sidewalk and trail system is available for use within the institutional campus setting.

Low-Density Residential

Low-density residential streets are generally located in areas with less than one dwelling unit per acre. Because fewer residences occupy these areas, traffic volume is generally lower than on residential streets with more dwellings. Long distances between destinations also reduce the amount of walk trips compared to those in higher-density residential areas, although walking is a significant recreational activity.

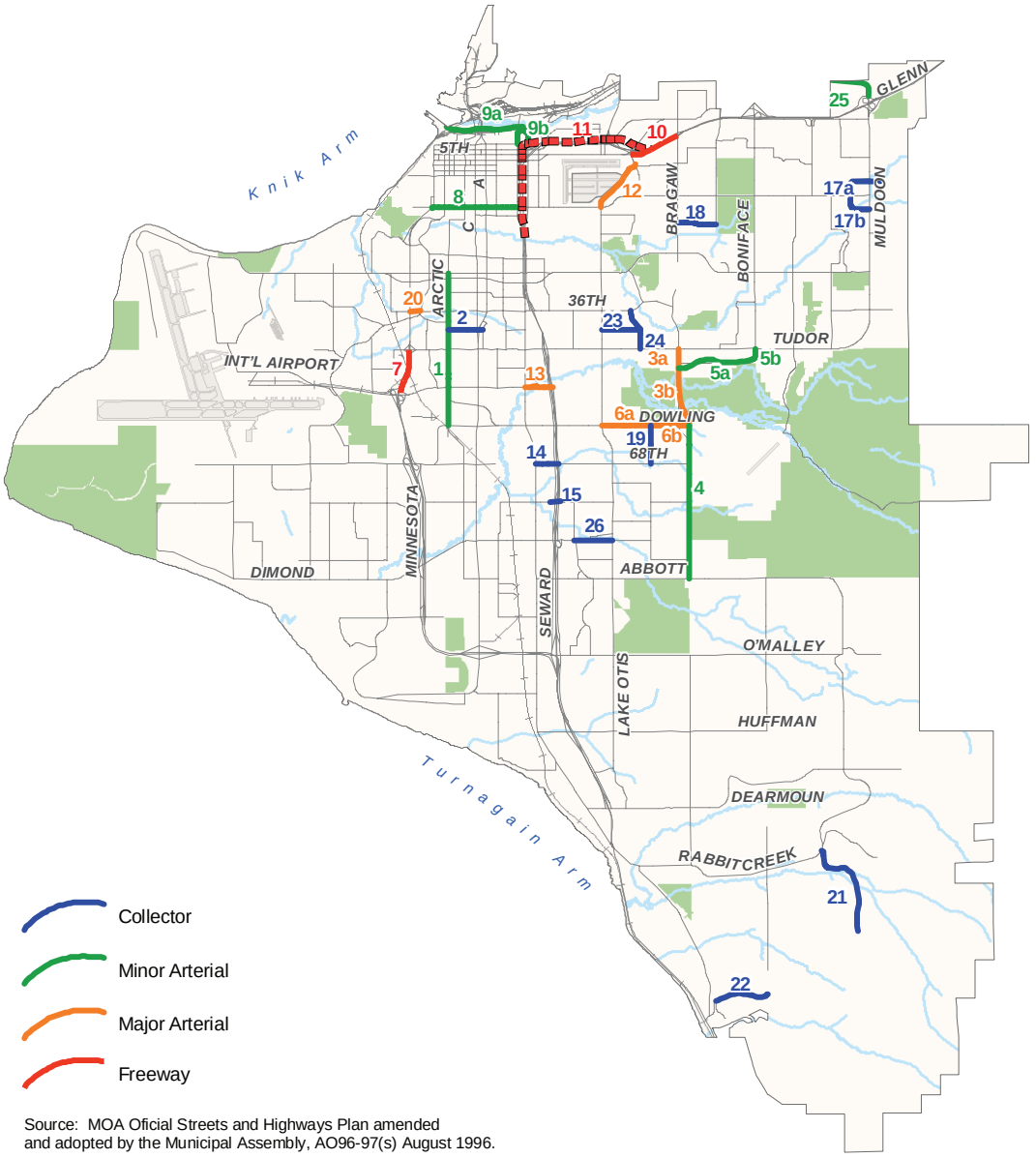
Low-density residential streets generally consist of two to four travel lanes. Historically, this type of street is often automobile-oriented, but provisions need to be made for separated multi-use trails on one side of the road where feasible. Natural vegetation is typically retained where possible and supplemented with planted vegetation at strategic spots.

Implementation

The functional classification of streets in the MOA is identified in the adopted Official Streets and Highways Plan and in the DOT&PF Coordinate Data System functional classification guidance. Anchorage 2020 provides guidance about which street corridors will be transit corridors and mixed-use streets; however, a more refined land use designation needs to be identified before a project is begun. At project initiation, the project sponsor, either MOA or DOT&PF, will consult with the MOA Planning Department to determine the applicable street typology and design-governing functional classification, primary and secondary elements, and applicable traffic management elements to be considered for the project. A context-sensitive design process should produce the dialogs and community input necessary to achieve street design balanced for all users.

Revisions of the functional street classifications are needed for consistency with the LRTP and will be reflected in an amendment to the Official Streets and Highways Plan (MOA, 1996). Figure 1 and Table 2 show proposed revisions. Future revisions to the Official Streets and Highway Plan should evaluate and eliminate the inconsistencies in functional classifications resulting from classification by both the MOA and DOT&PF.

Figure 1. Revisions of Functional Street Classifications for Consistency with LRTP Recommendations



Source: MOA Oficial Streets and Highways Plan amended and adopted by the Municipal Assembly, AO96-97(s) August 1996.

Table 2. Changes in Anchorage Bowl Street Classifications

Map No.	Roadway Name	Beginning Point	Ending Point	Current Classification	Proposed Classification
1	Arctic Boulevard	W. Northern Lights Blvd.	Dowling Road	Class III Major Arterial (divided)	Class II Minor Arterial
2	W. 40th Avenue	Arctic Blvd.	B Street		Class I Collector
3a	Abbott Loop Road/Bragaw Street	E. Tudor Road	E. 48th Ave.	Class II Minor Arterial	Class III Major Arterial
3b	Abbott Loop Road	E. 48th Ave.	Dowling Rd.	Study Area	Class III Major Arterial
4	Abbott Loop Road	E. Dowling Rd. (extended)	Abbott Rd.	Class I Residential Collector	Class II Minor Arterial
5a	48th Avenue (extended)	Bragaw St.	Boniface Pkwy.	Class IA Commercial/Industrial Collector	Class II Minor Arterial
5b	Boniface Parkway	E. Tudor Rd.	48th Ave.	Class IA Commercial/Industrial Collector	Class II Minor Arterial
6a	E. Dowling Road	Lake Otis Pkwy.	Spruce St.	Class II Minor Arterial	Class III Major Arterial
6b	E. Dowling Road (extended)	Spruce St.	Abbott Loop Rd.	Class I Residential Collector	Class III Major Arterial
7	Minnesota Drive	W. Tudor Road	International Airport Rd.	Class III Major Arterial (divided)	Class V Freeway
8	W. 15th Avenue	L Street	Gambell St.	Class III Major Arterial	Class II Minor Arterial
9a	Ship Creek Drive	small boat harbor	Ingra/Gambell extension		Class I Collector
9b	Ingra Street / Gambell Street (extended)	E. Ship Creek Drive	E. 3rd. Ave.		Class II Minor Arterial
10	Glenn Highway	Airport Heights Dr./Mountain View Dr.	Bragaw St.	Class III Major Arterial (divided)	Class V Freeway
11	Highway-to-highway connection[a]	Glenn Hwy. at Bragaw St.	Seward Hwy. at 20th Ave.	Study Area	Class V Freeway
12	Merrill Field Bypass	Lake Otis Pkwy. at DeBarr St.	Glenn Hwy. at Airport Heights		Class III Major Arterial
13	E. International Airport Rd. (includes new underpass)	Old Seward Hwy.	Brayton Dr. (highway east frontage)	Class I Residential Collector	Class III Major Arterial
14	E. 68th Avenue (includes new underpass)	Old Seward Hwy.	Brayton Dr. (highway east frontage)		Class I Collector

Table 2. Changes in Anchorage Bowl Street Classifications

Map No.	Roadway Name	Beginning Point	Ending Point	Current Classification	Proposed Classification
15	E. 76th Avenue	Homer Drive (highway west frontage)	Brayton Dr. (highway east frontage)		Class IA Commercial/Industrial Collector
16	E. 11th Avenue	Muldoon Road	Boston Ave.		Class IB Neighborhood Collector
17a	Creekside Parkway (extended)	Muldoon Road at E. 11th Ave.	DeBarr Rd.		Class I Collector
17b	Creekside Parkway Drive	Muldoon Road at E. 16th Ave.	DeBarr Rd.		Class I Collector
18	Reka Drive	Bragaw St.	Pine St.		Class IB Neighborhood Collector
19	Spruce Street	Dowling Road	E. 68th Ave.		Class IB Neighborhood Collector
20	W. 36th Avenue	Minnesota Dr.	Spenard Rd.		Class II Minor Arterial
21	Mountain Air Drive (extended)	Rabbit Creek Rd.	E. 164th Ave.		Class IB Neighborhood Collector
22	unnamed (Heritage Land Bank/Mental Health Trust/private)	Goldenview Drive	Potter Valley Rd./Old Seward Hwy.		Class IB Neighborhood Collector
23	E. 40th Avenue	Lake Otis Pkwy.	Piper St.		Class I Collector
24	Piper Street	Providence Drive	Tudor Rd.		Class I Collector
25	84th Avenue	Hartzell Road	Lake Otis Parkway		Class IA Collector
26	Oilwell Road	Muldoon Road (north of Glenn Hwy. interchange)	Elmendorf Access Gate		Minor Arterial
	Delete reference to Residential			Class I Collector Residential	Class I Collector
	Delete reference to Divided			Major Arterial Divided	Major Arterial
	Delete reference to Undivided			Major Arterial Undivided	Major Arterial
	Sand Lake Area, east to 40th/Midtown Park			Study Areas	eliminate Study Area references

[a] Corridor illustrates the general alignment of the future project. Final alignment will be determined during the environmental phase of the project. Alignment not to be used to established setback requirements under Anchorage Municipal Code, Title 21.

APPENDIX D. AMATS Checklists for Project Agency Sponsors

Complying With Federal Congestion Management System Requirements

Purpose: This checklist from Anchorage Metropolitan Area Transportation Solutions (AMATS) can be used as guidance to determine whether the project being assessed needs Congestion Management System (CMS) analysis, and if so, whether it meets CMS requirements for the consideration of alternatives and the incorporation of transportation demand management (TDM) and operational strategies into the project.

Section A is intended to provide the first screening that will determine whether an existing Transportation Improvement Program (TIP) project needs CMS evaluation. Section B is used to take projects through the CMS assessment procedure.

A. Project Qualification

Filled out by AMATS staff

1. Project Description:

Project Title:_____

Location:_____

2. Does the project use federal funds?

Yes? _____ Go to next question

No? _____ No need for further evaluation required

3. Does the project expand single-occupancy vehicle (SOV) capacity?

If yes:

General purpose travel lane?_____

Length of improvement?_____

Other?_____

Other project design details?

_____

_____

_____

_____

If yes, go to next question.

If a general purpose travel lane is not being added, no further evaluation is needed.

4. Transportation Improvement Program Project Assessment

What is the extent of the deficiency of the facility (2025)? _____

_____

Is it contained in the Transportation Plan? _____

Does it originate from other planning activities? _____

B. Project Compliance

Part B applies only to projects that need further evaluation.

Filled out by project agency sponsor.

1. Project Purpose and Need

Describe the problem or need the project is to address.

_____

_____

_____

_____

_____

2. Project Objectives

Identify the specific objectives or benefits of the project.

Relieve Congestion _____

Improve Safety _____

Eliminate Bottleneck _____

Enhance Freight and Goods Movement _____

Improve Mobility and Accessibility _____

Other _____

If the project is only to improve safety or to relieve a bottleneck, no further evaluation is needed.

3. Alternatives Considered

Name the strategies listed below that been considered prior to determining the need for SOV expansion. (A complete list of alternatives is found in the AMATS Congestion Management Program Report).

Transportation Demand Management (TDM) (appropriate at regional or subarea level)

____Rideshare programs

____Transportation management associations

____Transit and shared ride subsidies

Other _____

Transportation System Management (TSM) (appropriate at corridor or facility level)

____Intersection improvements

____Turn lanes or restrictions

____Bus pullouts

____Bike or pedestrian improvements

Other _____

Transit Operations (appropriate at region, subarea, or corridor)

____Increase frequency

____New or additional routes

____Signal preemption

Other _____

Access Management (appropriate at corridor and individual facility)

____Driveway control

____Median control

____Frontage roads

____Other _____

Incident Management (appropriate at subarea and corridor)

____Incident clearance

____Traffic rerouting

____Information dissemination

____Detection/verification

____Other _____

For alternatives checked, provide a brief description of how each was considered and, if appropriate, its impacts.

_____

_____

_____

_____

_____

_____

_____

_____

_____

4. Project Components

Indicate the TDM and TSM strategies that will be implemented with the project to ensure the long-term management of the improvement project.

Transportation Demand Management (TDM) (appropriate at regional or subarea level)

____Rideshare programs

____Transportation management associations

____Transit and shared ride subsidies

____Transit service improvements

Other _____

Transportation System Management (TSM) (appropriate at corridor or facility level)

____Intersection improvements

____Turn lanes or restrictions

____Ramp metering

____Bus pullouts

____Bike or pedestrian improvements

Other _____

Complying With Federal Intelligent Transportation System Requirements

Purpose: This checklist provides a quick step-by-step aid to project agency sponsors on how to comply with federal Intelligent Transportation System (ITS) requirements.

Step One: Planning/TIP Development—Project Agency Sponsors Agree to Comply with Federal ITS Regulations

When a project is nominated or added to the AMATS Transportation Improvement Program (TIP), project agency sponsors will provide answers to the following questions in the Project Information Packet during the project nomination process:

a. Does my project include any ITS elements?[1]

b. Does my project use funds from the federal highway trust fund (including the mass transit account) now and/or in the future? If you are not sure, consult with the AMATS Coordinator.

c. Does the project sponsor agree to comply with the federal ITS requirements?

If the answer is yes to the first two questions, then your project *must* comply with federal requirements or AMATS could be subject to loss of funding. Project agency sponsors must agree to comply with the federal requirements. The agreement will be documented as specified by AMATS. Proceed to Step Two.

If the answer is yes to the first question, but no to the second, project agency sponsors are *encouraged* to use the steps recommended in this checklist to foster a more efficient system.

Step Two: Design—Project Agency Sponsors Self-Certify Compliance with Title 23, Part 940, of the *Code of Federal Regulations*

Prior to acquisition, construction, or implementation, project agency sponsors will *self-certify compliance* with the federal ITS Final Rule/Policy. The Final Rule/Policy requires:

- ITS projects shall be based on a Systems Engineering approach (defined in the Final Rule/Policy) on a scale commensurate with the scope of the project.
- Prior to acquisition, construction, or implementation, conformance with the Project Implementation sections for the Final Rule/Policy shall be demonstrated.
- Final design shall accommodate the interface requirements and information exchanges as specified in the regional ITS architecture.

A section of the normal project documentation (plans, specifications, and estimate for construction projects) will be devoted to documentation of steps taken to comply with the ITS Final Rule/Policy.

Step Three: MOA Regional ITS Architecture Update—Project Agency Sponsors or Managers Provide Architecture Update Information

If the final design of the ITS project is inconsistent with the regional ITS Architecture, project agency sponsors or managers will notify the AMATS ITS coordinator of the changes.

More guidance on conformity with the Final Rule/Policy may be found at the following websites:

http://www.its.dot.gov/
http://www.ops.fhwa.dot.gov/its_arch_imp/index.htm;
http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13620.html;
http://www.ops.fhwa.dot.gov/int_its_deployment/sys_eng.htm;
http://www.its.dot.gov/standards/index.htm

Related Links:

http://www.dot.state.ak.us/iways/index.shtml;
http://www.muni.org/transplan/ITS.cfm

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[1] ITS means electronics, communications, or information processing used singly or in combination to improve the efficiency of a surface transportation system.

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Introduction to the 2027 LRTP Revisions

The new Chapter 12 and the accompanying modifications of the Anchorage Bowl 2025 Long-Range Transportation Plan (LRTP) update and revise the previously adopted Anchorage Metropolitan Area Transportation Solutions (AMATS) LRTP and amend the plan to include the Knik Arm Crossing project.

The Anchorage Bowl LRTP was last updated and adopted by AMATS in December 2005. According to federal requirements, AMATS must update the plan every 4 years or sooner. The federal requirements also mandate that the transportation plan include transportation projects for the next 20 years. This revised plan—the Anchorage Bowl 2027 Long-Range Transportation Plan—was adopted by the AMATS Policy Committee on April 12, 2007.

The LRTP revisions build on the existing former planning effort. All recommendations of the 2025 LRTP were shown to be still needed and are still included; the significant difference between the 2025 LRTP and the 2027 LRTP is the inclusion of the Knik Arm bridge. The revised LRTP was developed with much assistance from the Knik Arm Bridge and Toll Authority (KABATA).

The 2025 LRTP included the environmental and preliminary design phases of the Knik Arm Crossing, but stopped short of including the construction phase until information and analysis for the Knik Arm Crossing environmental impact statement (EIS) were made available to the public, transportation planning staff, and policy makers.

This LRTP revision includes the construction phase of the Knik Arm Crossing. Population and employment projections were updated to 2027 and included changes in regional population and employment distribution that would be induced by the opening of the Knik Arm Crossing. These new projections were developed by the Institute of Social and Economic Research for the Knik Arm EIS. The subsequent analysis for this LRTP revision considered fiscal issues, traffic impacts, and the impacts on the community and the environment from the Knik Arm Crossing. To address some of these concerns, the Knik Arm Crossing was included in the LRTP with a number of conditions identified on page 13 of the new Chapter 12.

The public review draft 2027 LRTP and the Air Quality Conformity Determination Report were released by the AMATS Technical Advisory Committee for a 30-day public comment period. The LRTP, the Air Quality Conformity Determination Report, and comments were subsequently reviewed by the AMATS Air Quality Advisory Board, the Municipality of Anchorage Planning and Zoning Commission (acting as the AMATS Citizens Advisory Committee), the Anchorage Assembly, and the AMATS Technical Advisory Committee. The aforementioned committees held public hearings on the revised LRTP and the air quality report and forwarded their committees' recommendations to the AMATS Policy Committee.

Following a public hearing, the AMATS Policy Committee adopted the LRTP and the Air Quality Conformity Determination Report on April 12, 2007.

Also incorporated into the revisions to the 2025 LRTP is a minor amendment to the LRTP that was adopted by the AMATS Technical Advisory Committee on April 26, 2007. This amendment defined the timeframe of the Lake Otis Parkway and Tudor Road intersection improvement as a short-term project.

This update to the LRTP extends the planning horizon to 2027 and results in the need for a future update no later than 2011.

CHAPTER 12. The Knik Arm Crossing Project

Introduction

This Long-Range Transportation Plan (LRTP) is amended to include an additional chapter on the Knik Arm Crossing project. As noted in the previous chapters, the 2025 Anchorage Bowl LRTP endorsed the completion of the Knik Arm Crossing environmental and engineering studies, but it stopped short of including the Knik Arm Crossing project as part of the planned roadway network, partly because transportation policy makers wanted to make their decision based on the environmental impact of the project.

Environmental impact information became available with the release of the *Knik Arm Crossing Draft Environmental Impact Statement and Draft Section 4(f) Evaluation* (DEIS, prepared by the Knik Arm Bridge and Toll Authority [KABATA]) in September 2006. A public review of the Knik Arm Crossing Amendment to the Long-Range Transportation Plan was initiated shortly thereafter. This amendment includes the following actions:

- Amend the LRTP to include the Knik Arm Crossing project as a regionally significant project
- Extend the planning horizon of the Anchorage Bowl LRTP to 2027
- Support the designation of the project alignment as part of the National Highway System (NHS) and update the Official Streets and Highways Plan to reflect such designation
- Adopt the regional air quality conformity determination on the project in accordance with the Clean Air Act

These steps are required by federal law (Title 23, Part 134, of U.S. Code) for all projects considered regionally significant.

Background

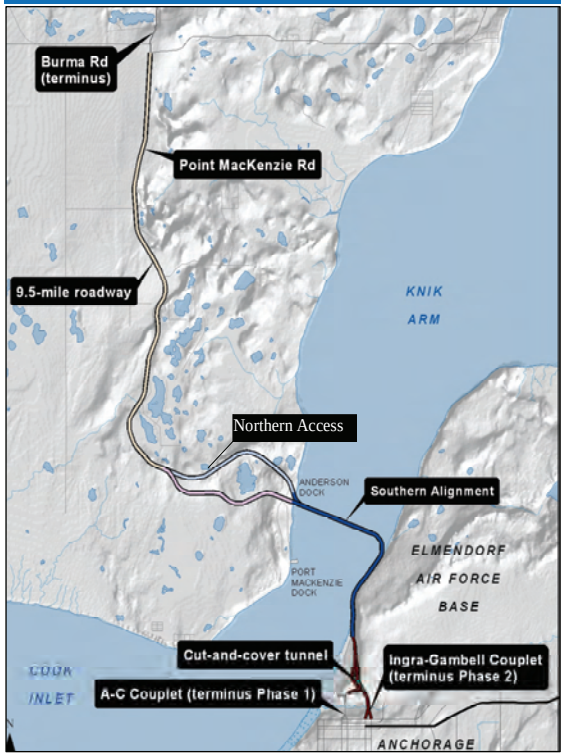
The Alaska Legislature established KABATA in 2003 as a public corporation and an instrumentality of the State of Alaska within the Alaska Department of Transportation and Public Facilities (DOT&PF). The specific mission of KABATA is to "develop, stimulate, and advance the economic welfare of the state and further the development of public transportation systems in the vicinity of the Upper Cook Inlet with construction of a bridge to span Knik Arm and connect the Municipality of Anchorage (MOA) and the Mat-Su Borough" (Alaska Statute 19.75.011).

Project Description

The Knik Arm Crossing project is a roadway and bridge crossing of Knik Arm connecting the Municipality of Anchorage (MOA) and the Matanuska-Susitna Borough (Mat-Su), as shown in Figure 12-1. The total length of the project from the intersection of Point MacKenzie and Burma roads to the A-C Couplet and Ingra-Gambell Couplet is approximately 19 miles. The preferred alternative assumes construction of an 8,200-foot, pier-supported bridge with causeway approaches that extend 2,000 feet from the western shore and 3,300 feet from the eastern shore.

The project would be phase-constructed, with an initial minimum two-lane bridge and a connection to the A-C Couplet in Phase 1 and an expansion of the bridge to four lanes and connection to the Ingra-Gambell Couplet constructed in Phase 2. The project is classified as a rural principal arterial in the Mat-Su and across Knik Arm, transitioning to an urban principal arterial in Anchorage in the vicinity of the Port of Anchorage (POA). The following page describes in more detail the part of the project within the MOA and Anchorage Metropolitan Area Solutions (AMATS) LRTP boundary.

Figure 12-1. Knik Arm Crossing Project



Source: HDR Alaska, Inc.

In Anchorage, the project follows the Anchorage shoreline and western perimeter of Elmendorf Air Force Base at the bottom of the bluff to Cairn Point, and then continues south, closely following the natural curvature of the shoreline. The project includes a cut-and-cover tunnel under Government Hill, along either a Degan Street- or Erickson Street-area alignment. Initial construction would include a connection to the existing A-C Couplet. Because of the impact of the bridge traffic on downtown streets, work on the design of the connection to a new viaduct (elevated bridge) across the Ship Creek rail yard to connect with the Ingra-Gambell Couplet should begin as soon as possible after the bridge is opened. Figures 12-2 and 12-3 depict the Knik Arm Crossing in more detail.

Neighborhood Mitigation

The Government Hill Community Council as well as other neighborhood community councils, such as Downtown, South Addition, and Fairview, would be directly affected by the proposed Knik Arm Crossing, given the current alignment alternatives. The project currently is in the environmental phase of development. For purposes of the LRTP, it is appropriate to provide guidance about the character of the project and expectations of how the project would be integrated into neighborhoods. An example of this guidance appears in the language adopted for cut-and-cover segments of the Glenn-Seward Highway connection. (See pages 115 to 117 of the Anchorage Bowl 2025 LRTP.)

Because of the potentially adverse effects of Phase 1 traffic from the Knik Arm Crossing on the revitalization of affected neighborhoods, the design for the Anchorage side of the bridge must include adequate mitigation to facilitate the efficient, safe, and neighborhood-appropriate incorporation of bridge traffic through Downtown and onto roads that can handle the anticipated increase in traffic. Design considerations would include measures to reduce the impact of the Knik Arm Crossing traffic from Government Hill to Downtown, and would provide improved pedestrian connectivity along the A-C Couplet up to 6th Avenue.

The connection of the Knik Arm Crossing to the A-C Couplet and ultimately the Ingra-Gambell extension in concept would include the use of existing topography to trench and cover an expressway-type roadway on an alignment designed to serve through trips and reduce traffic on neighborhood streets. These components would be accomplished while incorporating improved parks and pedestrian connections to benefit the Government Hill neighborhood, including trail connections joining Downtown, Ship Creek, and Government Hill. Unique and innovative community and streetscape enhancements would be required as part of the Knik Arm Crossing project as it travels through Government Hill. For example, a span over the depressed expressway could be used to reestablish neighborhood connectivity and minimize noise and air quality impacts to the neighborhood. The project would provide Government Hill with a balance of local road, trail, and pedestrian facilities, and would discourage the use of local roads by through traffic that might cut through the neighborhood.

The project would not result in a traditional freeway through a neighborhood that creates a barrier and separation of the neighborhood. The goal is for Government Hill and the project sponsors to use the opportunity to implement well-designed mitigation projects. Such mitigation projects would be developed in close cooperation

Key features of the Degan Alternative (Figure 12-2). Phase 1 includes a four-lane roadway (two-lanes in each direction), a cut-and-cover tunnel under Degan Street, and a connection to the A-C Couplet. Phase 2, which is basically the same for both alternatives, includes on and off ramps and an additional connection to the Ingra-Gambell Couplet through a new viaduct over the Ship Creek area.

Key features of the Erickson Alternative (Figure 12-3). Phase 1 includes a four-lane roadway (two-lanes in each direction), on and off ramps north of Government Hill, a tunnel under Erickson Street, and a connection to the A-C Couplet.

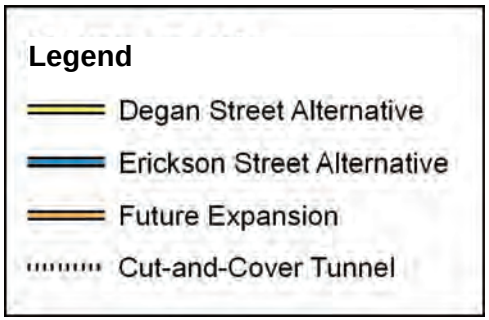
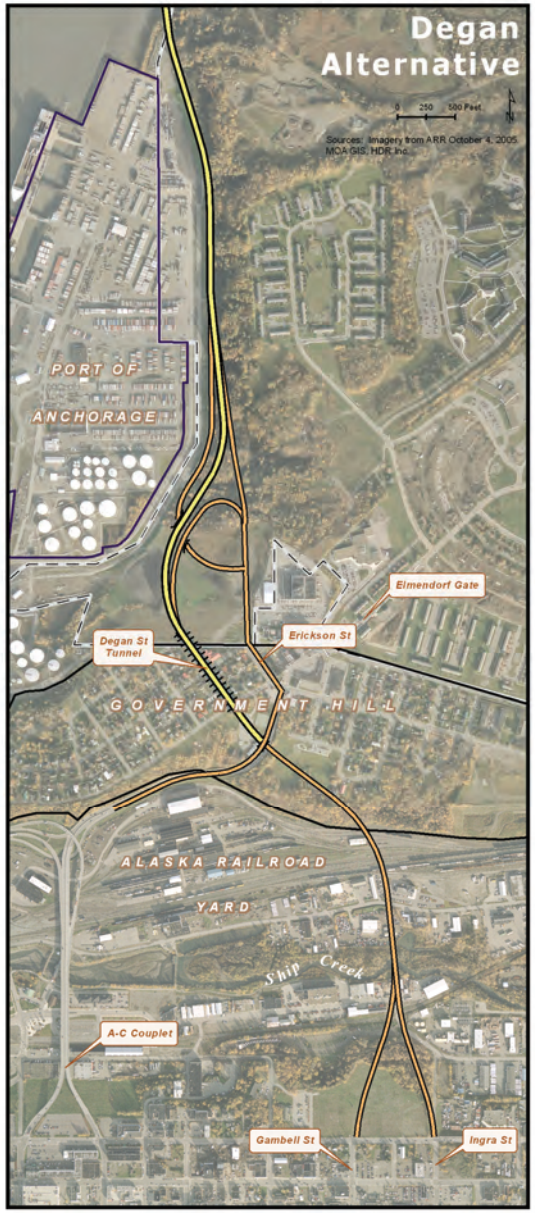
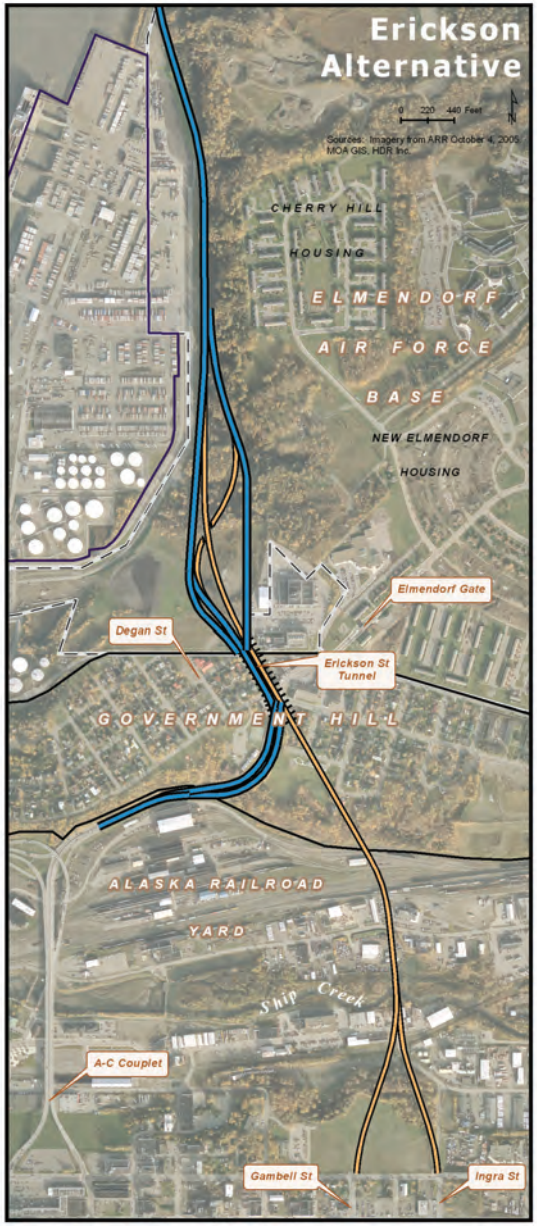


Figure 12-2. Degan Alternative



Source: HDR Alaska, Inc.

Figure 12-3. Degan Alternative



Source: HDR Alaska, Inc.

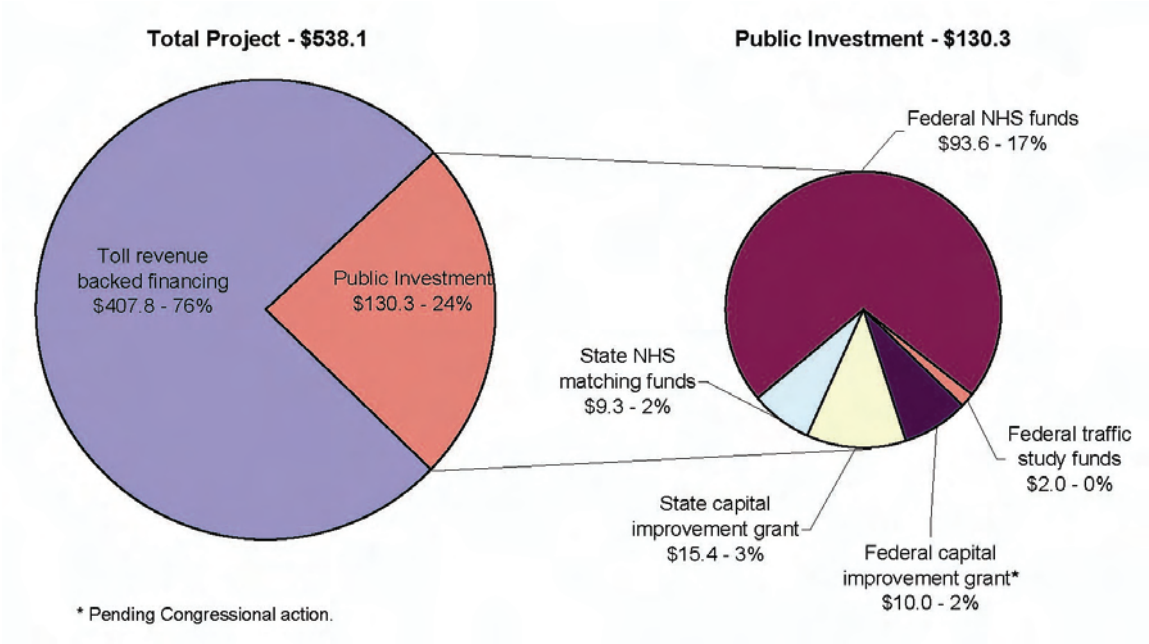
with the neighborhood. They would use a best practices and Context-Sensitive Design approach to enhance and revitalize the Government Hill community with a design that fits within the character of this unique and historic neighborhood.

Funding

According to the conceptual financial plan prepared by KABATA, the Knik Arm Crossing project would have no effect on the ability to finance or implement the other LRTP projects discussed in the 2025 Anchorage Bowl LRTP. In other words, the project would not require any future federal or state funding for construction, operations and maintenance, or future capacity requirements, beyond what the Alaska Legislature has already appropriated. The Alaska Legislature appropriated $93.6 million of the $232 million of federal-aid highway funds originally earmarked by the Alaska Congressional delegation for the Knik Arm Crossing in the SAFETEA-LU ((Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users) transportation bill. The Alaska Legislature also authorized state matching funds of $9.3 million when it provided spending authority for the federal funds. (See Figure 12-4.)

KABATA was established by the Alaska Legislature as a toll authority, and the toll revenue generated by users is expected to pay for most of the construction cost and all of the operation and maintenance expense. Tolls provide ongoing revenue, and the potential for tolls means that KABATA can borrow funds for construction. Money from toll collection would be used to pay for operating and maintaining the crossing, the cost of collecting the tolls, and general and administrative expenses of KABATA. Toll revenue would then also be used to pay principal and interest on loans, provide returns to investors, and fund investment in future expansion. After initial construction, traffic levels are projected to provide adequate toll revenue to support the project based on work performed by Wilbur Smith Associates, KABATA's traffic and revenue consultant.

Figure 12-4. Initial Construction Funding Sources



Note:
All dollars shown in millions.

Source: KABATA

Federal planning requirements for metropolitan areas stipulate that a financial plan demonstrate the consistency of proposed transportation investments with available projected sources of revenue. The description of the Knik Arm Crossing project includes estimates of costs that would be required to implement the project as well as estimates of existing and planned sources of funds available to pay for the project. The sections that follow present this information.

Cost Estimate for Initial Construction

Preliminary engineering estimates (independently confirmed by a Federal Highway Administration cost estimate review) indicate project costs for initial construction through opening of around $530 million to $540 million (in 2005 dollars). Initial construction includes improvements to existing roadways and development of connectors in the Mat-Su, the bridge and approaches, a road below the bluff around Cairn Point and behind the POA, and a tunnel under Government Hill, ultimately connecting to the A-C Couplet. A toll plaza and lanes are also included in the initial construction. Project cost information for the initial construction, including contingency costs, is included in Table 12-1. (Note: Cost estimates for Mat-Su road work are for illustrative purposes only and are not included as part of the Anchorage LRTP roadway project list.)

Proposed Funding for Initial Construction

The funding package to complete the initial construction of the project is anticipated to consist of approximately $408 million in toll revenue-backed financing and approximately $130 million in public investment, representing 76 percent and 24 percent, respectively, of initial construction costs. The projected funding package for initial construction, including jurisdictional allocations between Anchorage and the Mat-Su, is included in Table 12-2. The previous financial analysis conducted for the 2005 Anchorage Bowl LRTP showed that the amount of estimated future revenues was just barely sufficient to cover the cost of the roadway projects recommended in the LRTP. Therefore, it is critical to implementation of the LRTP to separate the funding for the Knik Arm Crossing project from the rest of the funding. In

Table 12-1. Initial Construction Costs

Component	Costs ($ millions)[a]		
	Anchorage	Mat-Su	Total
Mat-Su road work	–	30.0	30.0
Toll plaza and lanes	8.5	8.5	17.0
Toll bridge and abutments	181.7	181.6	363.3
Cairn Point/below the bluff road	62.5	–	62.5
Government Hill cut-and-cover tunnel	63.3	–	63.3
Total	**316.0**	**220.1**	**536.1**

[a] All costs are in 2005 dollars.

Source: KABATA

Table 12-2. Initial Construction Funding

Component	Costs ($ millions)[a]		
	Anchorage	Mat-Su	Total
Federal NHS allocation	56.1	37.5	93.6
State NHS match	5.6	3.7	9.3
State Capital Improvement Grant	–	15.4	15.4
Ingra-Gambell Reconnaissance Study	2.0	–	2.0
Federal Capital Improvement Grant[b]	10.0	–	10.0
Public Funding Subtotal	**73.7**	**56.5**	**130.3**
Sources backed by toll revenue funding	244.3	163.5	407.8
Total	**318.0**	**220.1**	**538.1**

[a] All costs are in 2005 dollars.

[b] Grant is pending. Assumes that the grant will be authorized.

Source: KABATA

other words, no funds beyond the amount of federal and state money already allocated (Table 12-2) should be diverted to the Knik Arm Crossing.

Cost Estimates for Future Expansion

Traffic forecast and capacity analysis (for which the results discussed below are in 2005 dollars) indicates the need for an Ingra-Gambell connection, the addition of a lane to the bridge superstructure, and Mat-Su road improvements at some point in the future. Total anticipated future expansion costs are projected at $392 million based on preliminary engineering estimates. The Ingra-Gambell connection is estimated to cost $219 million, and the bridge deck lane addition is estimated to cost $130 million. The Mat-Su road upgrades are estimated at $43 million, but are not expected to be required within the LRTP planning horizon of 2027. Nevertheless, the financial feasibility model used by KABATA demonstrates surplus toll revenues available would be sufficient to pay for the Mat-Su road improvements. Projected cost information for expected future expansion requirements is provided in Table 12-3.

Proposed Funding for Future Expansion

The KABATA financial feasibility model shows that all potential future expansion requirements can be paid for from a combination of accumulated surplus toll revenues and toll revenue-backed financing if these additional improvements are completed in 2023. However, whether sufficient toll funds would be available to finance the Ingra-Gambell connection if it was needed earlier has not been analyzed. Table 12-4 shows jurisdictional allocation of anticipated funding sources between Anchorage and the Mat-Su in 2005 dollars for all anticipated future expansion requirements, including the Mat-Su road upgrades, which are included for illustrative purposes only.

Table 12-3. Future Expansion Costs

Component	Costs ($ millions)[a]		
	Anchorage	Mat-Su	Total
Mat-Su road upgrades	–	43.2	43.2
Bridge deck lane addition	64.8	64.8	129.5
Ingra-Gambell connector	219.2	–	219.2
Total	**284.0**	**108.0**	**391.9**

[a] All costs are in 2005 dollars.

Source: KABATA

Table 12-4. Future Expansion Funding

Component	Costs ($ millions)[a]		
	Anchorage	Mat-Su	Total
AMATS LRTP (pre-existing)[b]	26.0	–	26.0
Sources backed by toll revenue funding	257.9	108.0	365.9
Total	**283.9**	**108.0**	**391.9**

[a] All costs are in 2005 dollars.

[b] This funding is planned as part of the Glenn-Seward Highway connection.

Source: KABATA

Project Operations and Maintenance

In modeling the financial feasibility of the project, KABATA assumed that toll revenues would first be used to pay for operating and maintaining the crossing, the cost of collecting the tolls, and general and administrative expenses of KABATA. Any remaining revenues would then be used for debt service, returns to private equity, and investment in future expansion to serve growing

traffic demand. Therefore, the financial feasibility analysis for the operation and maintenance of the Knik Arm Crossing assumed that no state or federal funds would be used to maintain and operate the facilities owned by KABATA, including the bridge, the approaches, and the toll facilities.

KABATA has also entered into a Memorandum of Understanding with the Mat-Su and DOT&PF to assign the operations and maintenance of the roads on the Mat-Su side of the crossing to the DOT&PF under the NHS. Given the regional significance of the project, it is recommended that the landside connections linking the Knik Arm bridge to the existing Anchorage road network, including the future Ingra-Gambell connection be listed as part of the NHS. As a result of this designation, the DOT&PF would be responsible for the maintenance of these facilities.

Conclusions

To incorporate financial constraint for the Knik Arm Crossing into the currently financially constrained LRTP, it is necessary to impose the following condition: No additional state funds and no additional federal transportation funds beyond those currently authorized, as shown in Tables 12-2 and 12-4, would be used to finance the project, including both initial construction and future expansion costs, as identified in Tables 12-1 and 12-3. Under this financial constraint, the funding for the amendment would no longer be valid (available) if additional state or federal transportation money is needed for the Knik Arm Crossing and the following conditions occur: (1) funding reduces the SAFETEA-LU formula funds or other flexible funds assumed as part of project funding (shown in Tables 12-2 and 12-4) and (2) the needed funding is not available because it is planned for use on other LRTP projects. Federal funding sources, such as loan programs, grants, tolls, and concessions, which are outside the funding assumed for existing LRTP projects, would not require an amendment to the LRTP, but these funding sources would be processed through the appropriations process for the Statewide Transportation Improvement Program (STIP) and the Transportation Improvement Program (TIP). If state or federal funds are proposed to be added to the Knik Arm Crossing project and those funds are also needed to show financial constraint for other LRTP projects, an amendment would be required to reassess and demonstrate financial constraint for all projects in the LRTP.

Population and Employment Growth

As Table 12-5 reports, the Knik Arm Crossing project is expected to have little effect on the overall regional growth in terms of population and employment. By providing access to a large supply of vacant land in the Mat-Su, however, the Knik Arm Crossing would have an impact on the relative share of population, households, and jobs growth between the MOA and the Mat-Su. The impact of the bridge (on population and employment) would be slow at first, but would accelerate as the supporting infrastructure (roads, schools, and utilities) is developed. As a result of completion of the proposed bridge, the MOA is projected to lose

Table 12-5. Projected 2027 Population, Households, and Employment

	Without Knik Arm Crossing Project			With Knik Arm Crossing Project		
Area	Population	Households	Jobs	Population	Households	Jobs
Total Anchorage area	352,000	134,400	176,000	339,100	129,500	170,200
Total Mat-Su area	171,600	62,500	45,000	185,500	67,600	50,200
Total Region	523,600	196,900	221,000	524,600	197,100	220,400

Source: "Memorandum on the Economic and Demographic Impacts of a Knik Arm Bridge," University of Alaska Anchorage, Institute of Social and Economic Research, September 2005.

4,900 households (or 12,900 people) and 5,800 jobs to the Mat-Su that it would otherwise be expected to capture (by 2027).

In its "Memorandum on the Economic and Demographic Impacts of a Knik Arm Bridge" (September 2005), the University of Alaska Anchorage, Institute of Social and Economic Research, listed the following assumptions about the economic effects of the bridge that might influence transportation patterns in the region:

- A bridge results in a modest shift in basic sector activity from the MOA to the Point MacKenzie region of the Mat-Su. The sectors most likely to be affected are warehousing and other businesses that require large amounts of land. Contributing to the modest level of impact initially is the possibility that some workers at these jobs might commute from Anchorage.
- During the longer term, a modest shift in some other basic sector jobs to the Mat-Su, rather than the MOA, would be expected. Examples are jobs in tourism and recreation.
- Growth in the other basic industries in the Mat-Su, including mining and timber, would not be significantly affected by the bridge.
- The bridge would increase the attractiveness of commuting by workers living in the Mat-Su but working in the MOA. However, the increase would be limited by the number of MOA jobs that pay enough to support the cost of a commute.
- Most Anchorage workers in jobs with a wage high enough to consider commuting would continue to choose not to commute. The largest source of new commuters would result from separations. In other words, newly hired workers who are new to the region would be the most likely to choose to commute. Already employed workers would be less likely to consider a move.
- The growth of support jobs in the Mat-Su does not significantly increase the number of trips from the Anchorage market. (Only a limited number of MOA residents would make shopping trips to the Mat-Su.)
- Population growth in the Mat-Su would be constrained by the number of jobs there and the number of residents who commute to jobs outside the Mat-Su (primarily Anchorage).
- Increased access to developable land in the Mat-Su would not result in an absolute reduction in population in Anchorage. Some of the projected increase in population in the Greater Anchorage-Mat-Su region would choose to live in Anchorage.

Transportation Impacts of the Knik Arm Crossing on the Regional and Local Transportation System

The Knik Arm bridge would have a relatively modest impact on regional travel patterns and behavior. According to the information prepared by KABATA for this project, total vehicle miles traveled (VMT) and vehicle hours traveled (VHT) would increase with implementation of this project because of more travel occurring in the Mat-Su, reflecting longer trips necessitated by the more dispersed, rural development patterns. By the year 2030, the total VMT would increase by 480,513 vehicle miles or 4.8 percent, because of the bridge construction. A similar effect would be an increase in the amount of time spent in cars, from 250,000 vehicle hours without the bridge to 260,000 hours with the bridge, or 4 percent (Table 12-6).

The effect of the bridge on the development of other transportation options is probably negative

Table 12-6. Projected 2030 Regional Travel Impacts

Alternative	Vehicle Miles Traveled	Vehicle Hours Traveled	Total Fuel Use (gallons)[a]
No action alternative	9,987,629	250,000	514,826
Knik Arm Crossing Erickson Alternative[b]	10,468,142	260,000	539,595

[a] Fuel consumption estimates were based on 19.4 miles per gallon, the U.S. Environmental Protection Agency fleet average for 2005.

[b] Results for the Degan Alternative are virtually the same as the Erickson Alternative.

Source: HDR Alaska, Inc.

overall. Assuming that the land development pattern on the Mat-Su side of the bridge would be low density (the apparent assumption of the DEIS), establishment of a viable bus system would be unlikely. The effect on carpooling and vanpooling rates is less clear-cut. These types of ridesharing depend in part on the length of the trip and the ease of finding a sufficient number of persons who share the general origin and destination. Low-density development patterns that may occur in the newly opened areas of the Mat-Su would tend to discourage carpooling. On the other hand, the cost of bridge tolls would tend to encourage ridesharing.

The impact of the bridge on the Anchorage transportation system is more focused on particular MOA areas.

The regional model estimates prepared by HDR Alaska, Inc., predict that about 33,500 vehicles per day would cross the Knik Arm bridge by the year 2027. If this projection becomes reality, the vehicle volume would add a significant amount of traffic to the MOA roadway network. It is important to analyze the effect of this traffic on the existing and planned Anchorage transportation network in order to determine its impacts as well as the potential need and timing of roadway improvements required to accommodate the bridge traffic. According to the regional model results, the opening of the bridge does not seem to have a significant effect on the amount of traffic on the Glenn Highway coming into Anchorage, which would remain about the same with or without the bridge. Because the primary impact of the bridge traffic is expected to be in downtown Anchorage, the analysis focused on this area.

The following three scenarios were developed and analyzed:

Scenario 1 — The Knik Arm bridge with the Ingra-Gambell connection in Anchorage as well as all roadway improvements recommended in the adopted AMATS 2025 LRTP.

Scenario 2 — The Knik Arm bridge with an A-C Couplet roadway connection but no Ingra-Gambell connection; all roadway improvements recommended in the adopted AMATS 2025 LRTP are included.

Scenario 3 — The Knik Arm bridge with only an A-C Couplet roadway connection (no Ingra-Gambell connection) and all 2025 LRTP improvements, except the Glenn-Seward Highway connection.

Scenario 1

According to the DEIS report prepared by KABATA, the Ingra-Gambell connection from Government Hill across Ship Creek to 3rd Avenue will be needed by the year 2023 to alleviate traffic congestion on the existing A-C Viaduct.

Figure 12-5 (included at the end of this chapter) shows the distribution of traffic that is projected to occur as a result of Scenario 1. Of the traffic coming over Ship Creek into Anchorage, 44 percent would be expected to travel over the A-C Viaduct and 56 percent over the new Ingra-Gambell connection. As a result, the A-C Viaduct in 2027 would still be heavily used, carrying about 25,850 trips per day (compared to a little more than 16,000 in 2005). Given the relatively rapid drop in traffic south of 6th Avenue, most of the bridge traffic on the A-C Couplet would be expected to be traveling to Downtown. The Ingra-Gambell connection to the Glenn-Seward Highway project makes that routing more efficient for travelers coming from Port McKenzie with destinations to other parts of the Anchorage Bowl outside of Downtown. Therefore, it appears that the Ingra-Gambell connection is an essential improvement needed to relieve the traffic congestion in the downtown core (described in Scenario 2).

An analysis conducted by HDR for the DEIS (see Table 12-7) indicates that the level of service for intersections in the downtown area would be at an acceptable level through 2030 under Scenario 1 (Figure 12-6).

Scenario 2

Scenario 2 explores the impact on the Anchorage roadway network of the Knik Arm bridge without the Ingra-Gambell connection over Ship Creek. In this scenario, the only route connecting the Knik Arm bridge to the Anchorage Bowl is the existing A-C Viaduct. Figure 12-7 shows an estimated 46,000 trips per day using the A-C Viaduct under this scenario. This traffic volume would nearly double the amount of traffic in the downtown area along the A-C Couplet between 3rd and 6th avenues. More traffic from the bridge would also pass through downtown streets through

Table 12-7. 2030 Peak Hour Level of Service

Intersection		Without Knik Arm Crossing		With Knik Arm Crossing	
		A.M. peak	P.M. peak	A.M. peak	P.M. peak
3rd Avenue	C Street	B	B	B	B
3rd Ave	A Street	B	B	B	B
Ocean Dock Road	Loop Road	B	B	B	B
5th Avenue	C Street	B	B	B	B
6th Avenue	A Street	B	B	B	B
5th Avenue	Gambell Street	B	B	B	B
6th Avenue	Ingra Street	B	B	C	C

Source: HDR Alaska, Inc.

the A-C Couplet to destinations in the midtown area. Higher traffic volumes would also occur in the downtown area between the A-C Couplet and the Glenn-Seward Highway corridor (formerly Ingra-Gambell Couplet) as Mat-Su travelers from the Port McKenzie area attempt to connect to the freeway system to travel to other parts of Anchorage. According to Figure 12 8, the eastern part of Downtown (between 3rd and 6th avenues) may experience an increase in congestion from the bridge opening.

Scenario 3

Scenario 3 explores the impact of the Knik Arm bridge on the Anchorage transportation network without either the Ingra-Gambell connection over Ship Creek or the Glenn-Seward Highway connection. The intent of this scenario was to examine the interdependencies between the Knik Arm bridge and the Glenn-Seward Highway connection. Figure 12-9 shows that without the Ingra–Gambell connection of the Knik Arm bridge project or the Glenn-Seward Highway improvements, the A-C Couplet would be among the highest volume arterials in the city, carrying more than 55,000 vehicles per day between 3rd Avenue (Downtown) and Northern Lights Boulevard (Midtown) by 2027. The A-C Couplet would carry about the same number of vehicles that the Ingra-Gambell Couplet carries today. Figure 12-10 shows an increase in congestion along the A-C Couplet, especially during the peak periods. Parts of eastern Downtown would also carry significant traffic volumes but less than would be projected under Scenario 2.

Conclusion

The Glenn-Seward Highway connection project would have, by far, the most significant impact on the reduction of traffic congestion in the Anchorage Bowl of any project contained in the LRTP. Without it, large areas of northeastern and central Anchorage will experience unacceptable level of congestion. The Glenn-Seward Highway project also has a very strong linkage to the proposed Knik Arm bridge project. Although many vehicles crossing the Knik Arm bridge would be traveling to Downtown, most would be traveling to destinations scattered throughout the Anchorage Bowl. A direct connection from the Knik Arm bridge to the freeway system through a new Ingra-Gambell connection over Ship Creek would be needed for these bridge-related trips.

Without a Knik Arm Ingra-Gambell connection and the Glenn-Seward Highway improvements, the traffic volumes traversing Downtown along the A-C Couplet would double by 2027. Furthermore, HDR estimates that 12 percent of total trips would be truck trips, which would further affect Downtown.

The total 2027 traffic using the A-C Couplet under Scenarios 2 and 3 (without the Ingra-Gambell connection) is projected to be more than 46,000 trips per day, which would create a congestion problem in downtown Anchorage. The construction of the Ingra-Gambell connection is expected to substantially relieve this congestion. However, the Ingra-Gambell connection would only manage to shift the congestion to the Ingra-Gambell Couplet

without the construction of the Glenn-Seward Highway connection.

The question remains, when should the Ingra-Gambell connection be built? To answer this question, KABATA has committed funding to begin the reconnaissance effort to analyze this issue once funding for the bridge and Anchorage landside connection is imminent.

Conditions

The Knik Arm Crossing is added to the Anchorage Bowl LRTP with the following conditions:

A. (1) The required air quality conformity analysis is completed, (2) the financial details of the bridge are solidified, and (3) the final environmental impact statement is released and the comments from the MOA, Mat-Su, the Alaska Railroad Corporation, and the public have been addressed.

B. No funding currently planned for implementation of the existing LRTP, beyond that currently authorized in Tables 12-2 and 12-4, will be used to support construction or maintenance of any element of the Knik Arm Crossing. In addition, no local funds will be used for construction or maintenance of any element of this project.

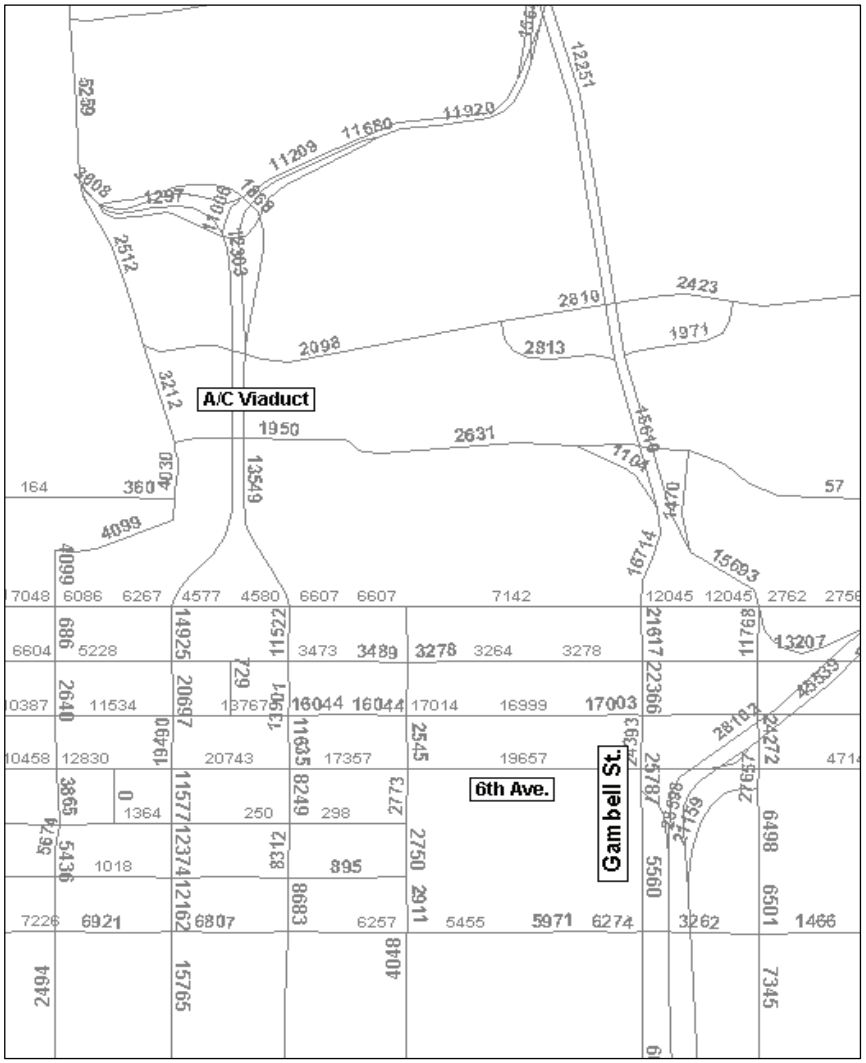
C. A neighborhood mitigation program, as described in this chapter, will be adopted. This program will protect the integrity of the Government Hill and other affected neighborhoods (using the best Context Sensitive Design practices) with the objective of enhancing and revitalizing these unique and historic neighborhoods.

D. No construction work will begin on the Anchorage landside bridge approaches until (1) the complete funding package is secured for the bridge and the Anchorage access connections and (2) the project design has been submitted for review through the established municipal design review process.

E. Recognizing that the Glenn-Seward Highway connection project and the Ingra-Gambell connection across Ship Creek are critical complementary projects linked to the Knik Arm Crossing, it is understood that, as part of the Crossing project, KABATA will fund the design and construction of the Ingra-Gambell connection in a manner to permit its opening as early as 2018 if needed. This process would require the reconnaissance/environmental phase of the Ingra-Gambell connection to start in 2008.

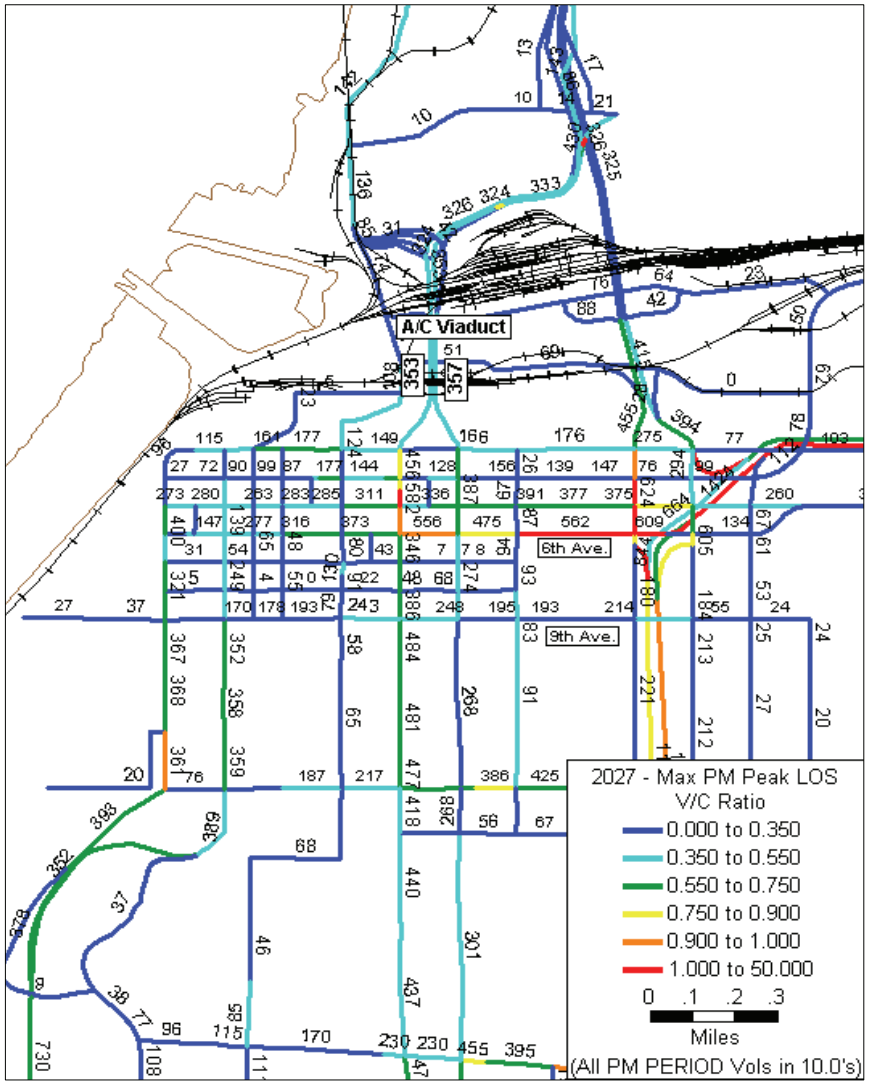
F. KABATA will fund the installation and operation of an air quality monitoring site to assess impacts in the vicinity of where the Knik Arm bridge traffic will combine with other A/C Couplet traffic in downtown Anchorage. The monitoring project will begin in advance of the bridge completion to assess before and after conditions for air pollutants of coarse and fine particulate matter and carbon monoxide. Monitoring will occur 1 year before and 1 year after construction.

Figure 12-5. Scenario 1 – 2027 Annual Average Daily Traffic



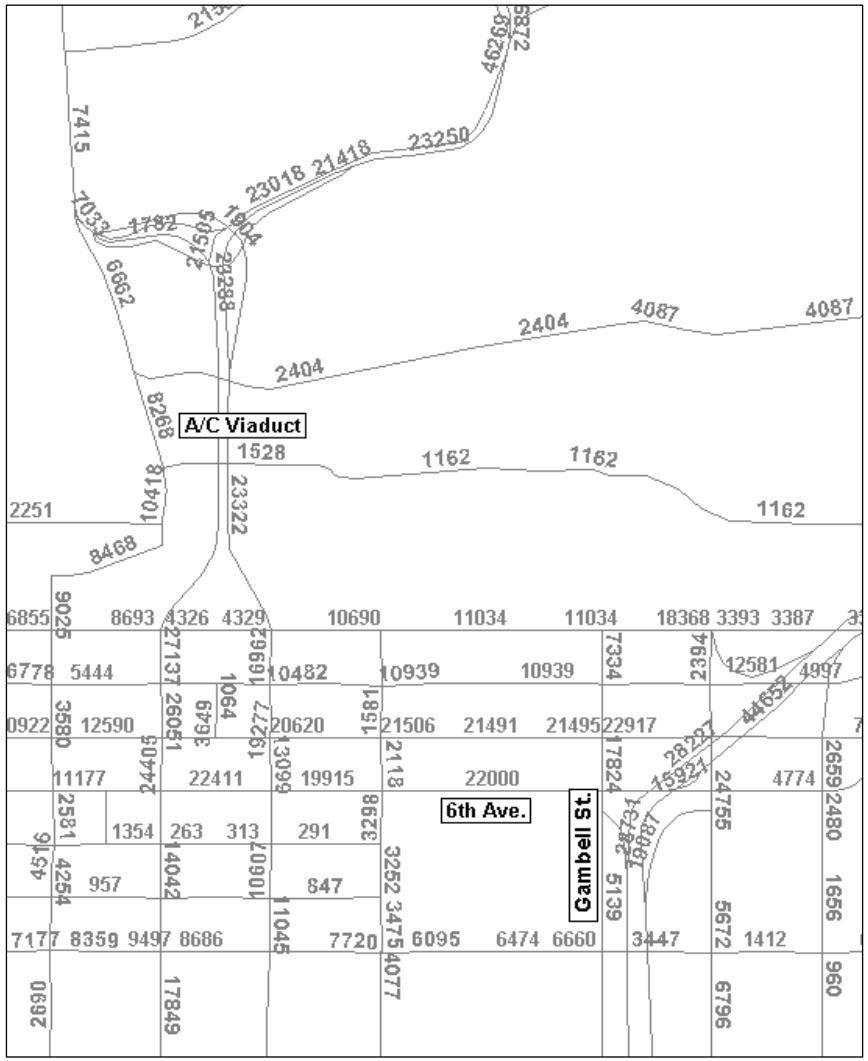
Source: MOA Traffic Department

Figure 12-6. Scenario 1 – Maximum 2027 PM Peak Level of Service



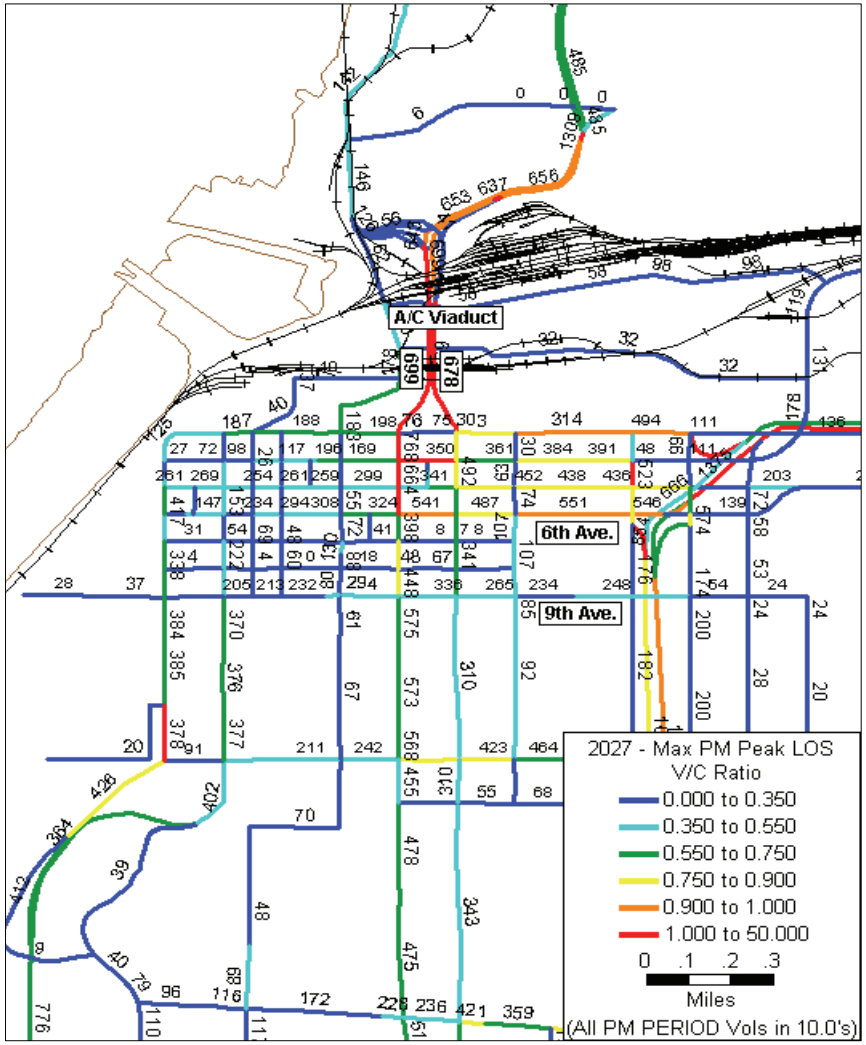
Source: MOA Traffic Department

Figure 12-7. Scenario 2 – 2027 Annual Average Daily Traffic



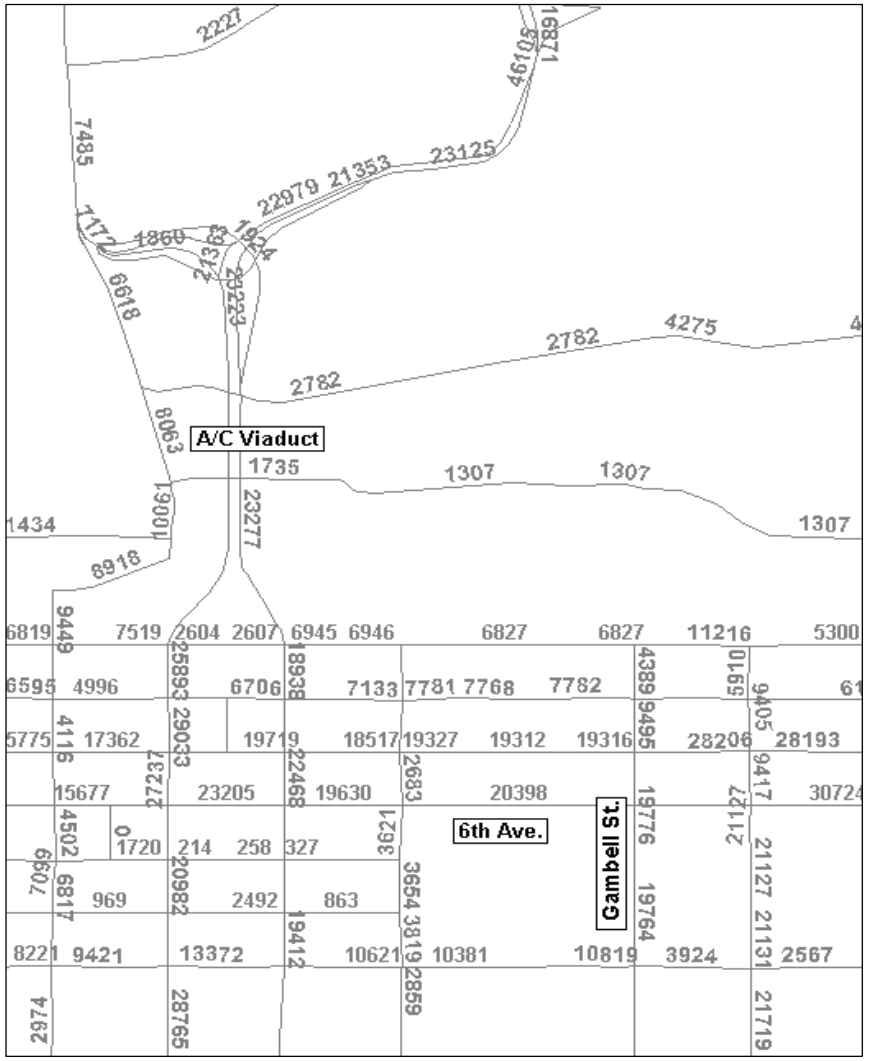
Source: MOA Traffic Department

Figure 12-8. Scenario 2 – Maximum 2027 PM Peak Level of Service



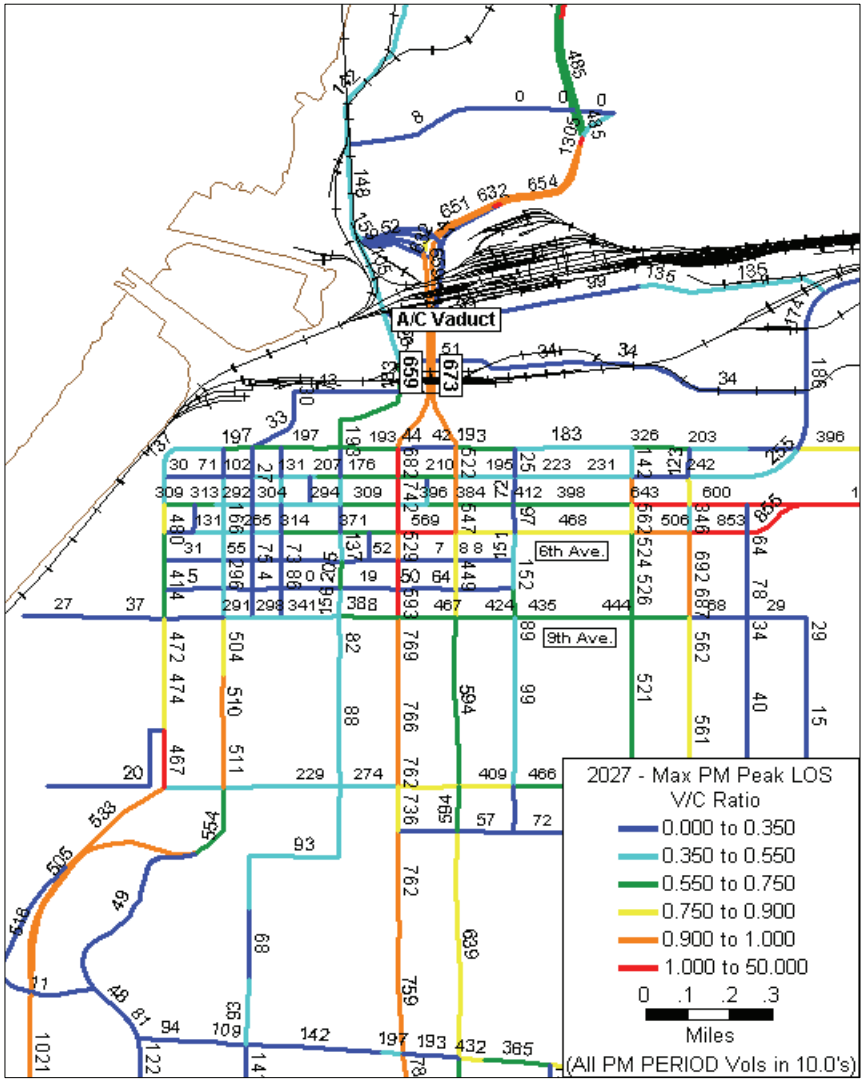
Source: MOA Traffic Department

Figure 12-9. Scenario 3 – 2027 Annual Average Daily Traffic



Source: MOA Traffic Department

Figure 12-10. Scenario 3 – Maximum 2027 PM Peak Level of Service



Source: MOA Traffic Department

Additional Revisions to the Anchorage Bowl 2025 LRTP

The following pages show the revisions to pages of the Anchorage Bowl 2025 Long-Range Transportation Plan.

Blue text indicates revised or new text.

Deleted text is shown in a "strikethrough" font. (~~Sample strikethrough font.~~)

Table 6-1. Projections for 2025 Regional Growth

Area	2002	2025 Forecast	Numeric Change	2002 – 2025 Growth (%)
Population				
Anchorage Bowl	237,160	302,330	65,170	28
Chugiak-Eagle River	31,540	58,870	27,330	87
Mat-Su Borough	65,800	126,600	60,800	92
Total	**334,500**	**487,800**	**153,300**	**46**
Households				
Anchorage Bowl	84,620	113,060	28,440	34
Chugiak-Eagle River	10,580	18,680	8,100	77
Mat-Su Borough	22,800	42,100	19,300	85
Total	**118,000**	**173,840**	**55,840**	**47**
Employment (includes self employed)				
Anchorage Bowl	150,660	186,570	35,910	24
Chugiak-Eagle River	3,980	7,190	3,210	81
Mat-Su Borough	13,700	24,200	10,500	77
Total	**168,340**	**217,960**	**49,620**	**30**

Notes:
Changes in growth distribution caused by the Knik Arm Crossing project are found in Chapter 12.

The specific data for Chugiak-Eagle River and the Anchorage Bowl were derived from total MOA forecasts based on the 1993 *Chugiak-Eagle River Comprehensive Plan.*

Military base housing and population are included in the Anchorage Bowl figures.

Source: ISER data and projections in *Draft Land Use Forecast Report*, *Anchorage 2025 Household and Employment Forecast and Allocation for the 2004 Long-Range Transportation Plan*, prepared by the MOA Transportation Planning Division in July 2004.

and 35,910 new jobs by 2025. The rest of the region is expected to gain about 27,400 new housing units and only 13,710 new jobs by 2025.

Regional population growth through 2025 can be seen in Figure 6-1. The Mat-Su Valley will experience the most dramatic population growth (92 percent), followed by Chugiak-Eagle River (87 percent), and the Anchorage Bowl (28 percent).

Employment in both the Mat-Su Borough and Chugiak-Eagle River is expected to consist largely of local jobs to meet demand of the growing local populations. In 2025, the Anchorage Bowl will remain the dominant source of employment for the Southcentral region.

In the past few decades, the economy of the Mat-Su Borough has become closely linked to the MOA economy. That connection relies heavily on residents commuting from the Mat-Su Borough to employment in Anchorage. Chugiak-Eagle River residents also travel to Anchorage for jobs. All commuters from the Mat-Su Borough and Chugiak-Eagle River must use the Glenn Highway to get into the Anchorage Bowl. The expected number of commuters will continue to increase, and Figure 6-2 charts the projected Glenn Highway commuters from the Mat-Su Borough and Eagle River to employment sites in the Anchorage Bowl.

MOA Employment by Industry Sector

Estimating employment by industry sector is an important step in forecasting future travel demand. Each industry sector has characteristics relevant to choices that affect facility location and space requirements and are affected by applicable land use policies and regulations.

The Alaska Department of Labor recognizes 13 industry sectors:

- Health Services
- Universities
- Schools
- Government
- Services
- Finance, Insurance, and Real Estate
- Retail Trade

Table 6-2. Projected Household Growth by Planning Area, 2002–2025

Planning Area	Household Growth	Percentage of Total Growth
Central	5,090	14.2
Northeast	7,830	21.9
Northwest	7,520	21.0
Southeast	3,070	8.6
Southwest	4,180	11.7
Chugiak-Eagle River	8,100	22.6
Total	**35,790**	**100.0**

Note:
Changes in growth distribution caused by the Knik Arm Crossing project are found in Chapter 12.

A substantial amount of housing also was allocated to the redevelopment areas identified in the Anchorage 2020 comprehensive plan. Residential areas in redevelopment areas near the three major employment areas (Downtown, Midtown, and the University-Medical District) is predicted to attract more than 3,120 new housing units, and an additional 1,000 housing units are forecast within the Central Business District of Downtown (in an area representing only a small part of the downtown redevelopment area identified in Anchorage 2020).

Housing development and increased household densities along the four transit-supportive development corridors (Arctic, DeBarr, Spenard/Jewel Lake, and Lake Otis) is also predicted. These corridors are expected to attract more than 14,000 new housing units.

Figure 6-7 illustrates that half of the employment growth from 2002 to 2025 is forecast to occur in the three major employment centers identified in Anchorage 2020. The largest amount of employment growth is allocated to Midtown, where more than 9,840 new jobs are projected by 2025 (17 percent of the total). Effects of this new development will result in more concentrated employment with densities closely matching the densities in Downtown. The higher employment density, combined with a more diversified mix of office and retail uses, will help to encourage carpooling and transit use in the midtown area, as well as to enhance the attraction of Midtown as an employment and retail destination.

A large share of the employment growth is projected to occur in the downtown redevelopment area, where the number of jobs is expected to increase by nearly 5,225 (13 percent of the total), 3,345 of which are in the Central Business District. Employment in the University-Medical District redevelopment area is expected to increase by nearly 3,310 jobs (7 percent of the total).

Considering the Knik Arm Crossing

The projections shown in Table 6-1 and discussed in this chapter do not take into account the potential effects of a Knik Arm bridge on regional population and employment distribution. During preparation of the most recent ISER population and employment projections, a preliminary analysis was conducted to test the sensitivity of regional population and employment distribution to the opening of a Knik Arm crossing in the year 2009.

Results indicate that a bridge would reduce the growth of the Anchorage population by about 16,000, or 4 percent, by 2030. This shift would start slowly and increase in the later years of the planning period, closer to 2027. Opening a Knik Arm bridge likely would have less effect on employment growth in Anchorage, with about 6,000 jobs expected to go elsewhere in the region.

It should be noted that the change in growth rates is very sensitive to the year that the bridge is opened. The anticipated date is 2010; however, the date is subject to many variables. Population and employment changes that could result from the Knik Arm bridge have been analyzed as part of the Environmental Impact Statement for the project. On the basis of those findings, the Knik Arm Crossing project has been amended to be included in the LRTP. Details on the project can be found in Chapter 12.

Regional Connections

Railroad tracks and only two road connections link Anchorage by land to the north and south, serving freight distribution and travelers. Components of the National Highway System, the Glenn Highway and Seward Highway serve northbound and southbound travel, respectively. Major improvements on these two highways are incorporated in LRTP recommendations (Chapter 8). Other key access roads connect these regional highways to both TSAIA and the Port of Anchorage.

The community is considering ~~two~~ other regional connection concepts, including commuter rail service.

~~Knik Arm Crossing Studies and Implications~~

~~Only two roadways currently link Anchorage to elsewhere, but planning studies are in process for a bridge across the Knik Arm to the Mat-Su Borough. Currently the Knik Arm crossing project is in an environmental analysis phase; information about its alignment, configuration, components, costs, and other features are not yet known.~~

~~Critical questions and policy decisions will be addressed after more information has been gathered. How would a Knik Arm crossing affect the land use and growth patterns envisioned by Anchorage 2020? How would it affect the Anchorage housing market? Will broader urban sprawl be encouraged and enabled by transportation access to a large expanse of undeveloped land?~~

~~The magnitude of traffic or impacts of Knik crossing traffic on the LRTP program cannot be identified at this time. The potential cost burden and community impacts of supplemental projects needed to tie the crossing project into the Anchorage road network also cannot be anticipated at this time.~~

~~All of these topics need to be covered and documented in the federally mandated environmental analysis under way. The LRTP endorses completion of environmental and engineering studies and documentation for the Knik Arm crossing concept. Information about the alignment, configuration, components, costs, funding, and other features of the project can then be used by the MOA and AMATS to support future decisions.~~

Regional Public Transportation Services

The Glenn Highway corridor links Anchorage with Chugiak-Eagle River and the Mat-Su Borough. The only regional public transportation service operating regularly between the Mat-Su Borough and Anchorage is the MASCOT bus service. It offers two trips a day from the Mat-Su Borough.

The Glenn Highway corridor is unusual in that there is no alternative or back-up route in case of crashes or overcrowding. During commute hours, projected 2025 travel demand will exceed the existing corridor capacity, unless remedies are implemented. Figure 7-33 shows the existing road capacity and projected traffic demand along the Glenn Highway corridor from Eklutna Road to Boniface Road. Traffic demand on the Glenn Highway corridor will exceed capacity in 2025 from Mirror Lake to Boniface Road.

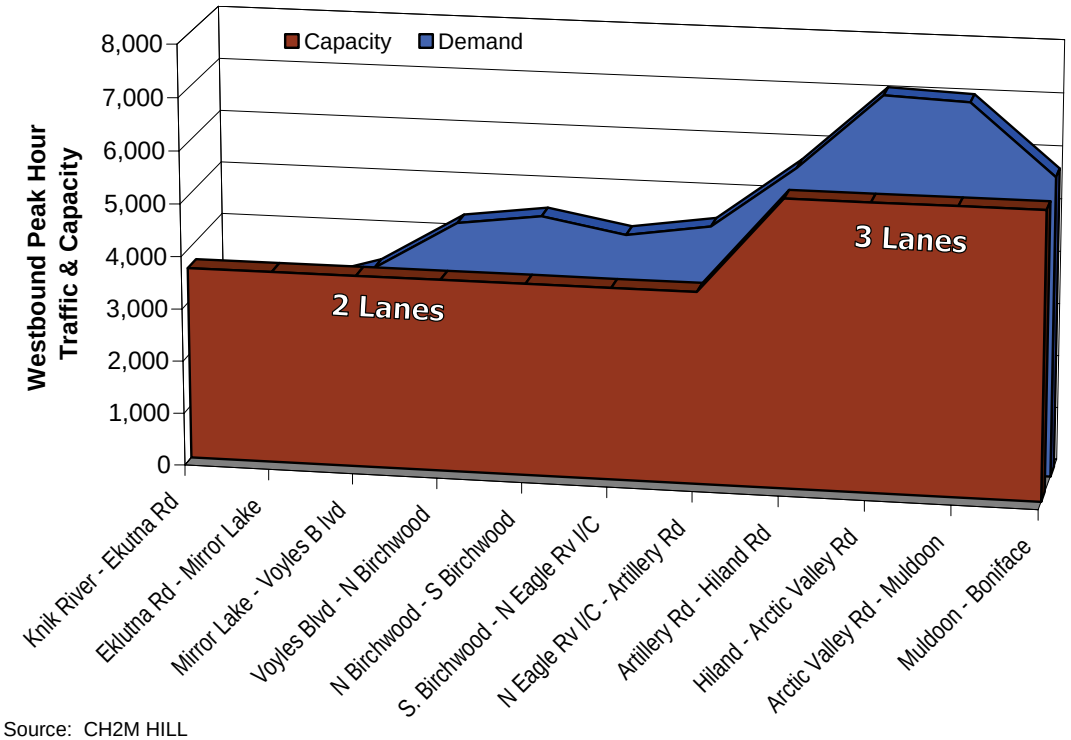
Commuter Rail Services

The Alaska Railroad mainline runs parallel to the Glenn Highway from Wasilla and other communities, providing the prospect of a commuter rail option for travel into and out of Anchorage. Feasibility of commuter rail service between the Anchorage Bowl and the Mat-Su Borough has been studied. (One analysis is *South Central Rail Network Commuter Study and Operation Plan*, by Wilbur Smith and Associates et al., January 2002.) Although there are advocates for implementation of a commuter rail service, the recent feasibility studies do not present a compelling case.

Two studies conducted in 2000 produced rider commuter rail rider estimates for 2005 of 152,000 to 190,000 annual riders for weekday service, or 600 to 750 riders per average weekday. For 2015, rail patronage was forecast at 230,000 annual riders, equivalent to about 900 riders per weekday.

Commuter rail passenger estimates were predicated on two morning trains from Wasilla to Anchorage and two trains from Anchorage to Wasilla in the afternoon, plus limited off-peak service. Travel by rail from Wasilla to the Ship Creek Intermodal Terminal in Anchorage would require about 1 hour. Stations in Chugiak-Eagle

Figure 7-33. Managing Demand and Available Capacity on the Glenn Highway, 2025 Morning Peak Hour



Source: CH2M HILL

River provide opportunity for commuters there to use rail service also. Service is assumed to expand 30 percent by 2015 and 75 percent by 2025. Coordinating bus service in the Anchorage Bowl enabling train commuters to get to destination sites beyond walking distance from the rail terminal is assumed to be available.

Table 7-11 summarizes estimated outcomes for commuter rail services between Wasilla and Anchorage between 2005 and 2025. Rail service may take from 600 to 1,750 vehicle trips off the Glenn Highway, mostly commuters in peak hours. Net public costs (subsidy) to support the estimated rail service range from $2.66 million to $4.87 million per year (in 2004 dollars). The subsidy works out to be almost $10 per passenger on the optimistic end and more than $18 per passenger on the pessimistic end.

For commuter rail service to be implemented, a number of steps would be required. Foremost is determination of funding responsibilities, mechanisms, and sources. In parallel with the funding steps, creation of an institutional structure and negotiation of management, operations, and sponsorship agreements among the several affected parties is required. Other prerequisite activities include project development planning; engineering, and environmental analyses; operations detailing; equipment procurement and customization; station and facilities development; service specifications; patronage, pricing, marketing, and revenue projection refinements; connector transit service integration arrangements; and related multi-government coordination.

Conclusions and Approaches for Enhancing Regional Connections

Clearly, major issues are related to regional connection facilities. The rapid growth in the Mat-Su Borough and Chugiak-Eagle River will put significant strain on the Glenn Highway in the absence of other actions. A Knik Arm crossing would relieve some traffic pressure on the Glenn Highway~~, but many unknowns still characterize the Knik Arm crossing proposal~~.

Commuter rail implementation could assist in the Glenn Highway corridor. See Table 7-11. And new regional bus service could contribute. Its initiation would require development of funding resources and mechanisms, as well as many of the same development steps noted above for commuter rail service.

The solution to improving regional connections lies in greatly improved transit service, spot improvements to relieve traffic bottlenecks,

Figure 8-1. Recommended Road Projects

Northwest Anchorage

- Spenard Road and Fireweed Lane projects help create neighborhood friendly commercial areas.
- Enhancements to freight routes in the Ship Creek area improve freight movement access to and from the Port of Anchorage.
- Minnesota Drive and Tudor Road interchange and Minnesota improvements lessen congestion in these key corridors and transition freeway roadway to major arterial roadways.
- Knik Arm Crossing project, a National Highway System route connection north to the Matanuska-Susitna Borough (Mat-Su), improves regional transportation infrastructure and connectivity for the movement of people, freight, and goods to, from, and between Anchorage, the Mat-Su, and Interior Alaska and between regional airports, ports, hospitals, and fire, police, and other entities supporting emergency response and evacuation.

Northeast Anchorage

- The Glenn-Seward highway connection effectively carries traffic from the Glenn Highway to Downtown, Midtown, and University-Medical District area, removing traffic from local streets.
- Lake Otis Parkway improvements and connection to the Glenn Highway relieve congestion, improve pedestrian and transit movement, and safely connect pedestrians to parks, trails, and retail areas.
- Tudor Road Congestion Management Plan reduces traffic friction and provides safer pedestrian movement and better transit operations.
- Muldoon Road landscaping and pedestrian improvements enhance travel alternatives and transit use, as well as opportunities for beautification.

Southwest Anchorage

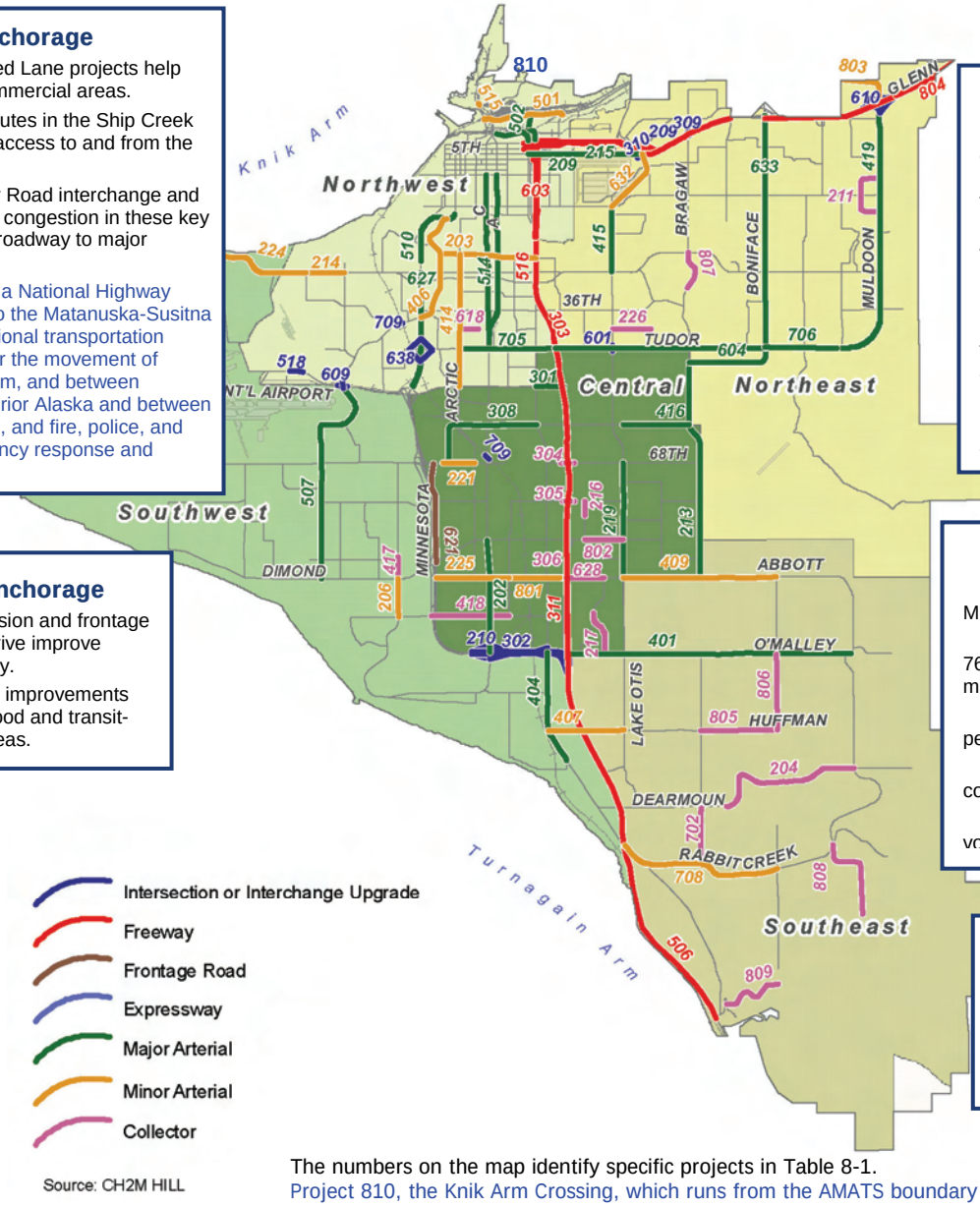
- Northwood extension and frontage roads on Minnesota Drive improve north-south connectivity.
- Jewel Lake Road improvements help create neighborhood and transit-friendly commercial areas.

Central Anchorage

- Dowling Road extension from Abbott Loop Road to Minnesota Drive improves east-west travel options.
- Connectivity under the Seward Highway at 92nd, 76th, and 68th avenues offers more route choices to midtown and downtown destinations.
- C Street extension offers connectivity for cars, transit, pedestrians, and bicyclists.
- Extensions of 92nd and 100th avenues improve connectivity and freight movement.
- Seward Highway improvements handle high traffic volume in the corridor.

Southeast Anchorage

- Elmore Road extension improves connectivity to several schools and assists emergency response and fire safety on the Hillside.
- Predominant east-west arterials are upgraded to meet demand, and missing links are added.



The numbers on the map identify specific projects in Table 8-1.
Project 810, the Knik Arm Crossing, which runs from the AMATS boundary north of the Port of Anchorage, tying into the Anchorage roadway network at Loop Road and Gambell and Ingra streets, was added by amendment. Details of the project are found in Chapter 12.

provide more direct access from the freeway to the airport.

Another road improvement, connection of Dowling and Raspberry roads, will enhance TSAIA access from the south.

Port of Anchorage Access Improvements

Truck access to and egress from the Port of Anchorage are significantly improved by projects linking the Port of Anchorage to the Glenn and Seward highways.

National Highway System Continuity and Improvements

The LRTP materially improves National Highway System connectivity and design consistency through Anchorage. The Glenn–Seward highways connection closes a long-standing continuity gap and establishes a limited-access corridor serving the entire MOA and region.

The Seward Highway is upgraded to six lanes north of O'Malley Road to accommodate increasing demand. Additionally, a system interchange linking the Seward Highway and Minnesota Drive, further strengthens the National Highway System connectivity. All of these projects improve access and connections with the port and airport intermodal terminals.

Knik Arm Crossing

The LRTP adopted in December 2005 endorsed completion of ongoing environmental and engineering studies for the Knik Arm crossing concept. These studies produced information about the alignment, configuration, components, costs, and other features to support inclusion of the project in the LRTP. Based on completion of the necessary environmental documents, the crossing has been included in the LRTP by amendment. Details of the project can be found in Chapter 12 and the published environmental documents.

Commuter Rail Services

Commuter rail between the Mat-Su Borough and the Anchorage Bowl is another potential travel option. As recommended transit improvements are implemented, they will provide an efficient network for commuter rail travelers to make connections that will enhance the viability of commuter rail. The LRTP endorses future studies of the feasibility and funding of commuter rail service between the Mat-Su Borough and Anchorage.

Anchorage and Mat-Su Borough Collaboration on Common Interests

A convergence of physical growth and common interests is occurring between the MOA and the Mat-Su Borough. The two jurisdictions together house the majority of the population and employment in the state. Travel interactions and economic interest argue for collaboration on a number of fronts. As the urban region continues to grow, pressure will mount for urban infrastructure funding. Collaboration in regional planning and a unified voice on state funding issues should be supported by both jurisdictions.

Congestion (Mobility) Management

The crux of our transportation network congestion problem is coping with weekday surges that occur during AM and PM weekday commute hours. Congestion arises where there is more traffic than there is corresponding road capacity. For most hours of the day, our transportation network capacity is adequate and travel is relatively unrestricted.

Alternatives to Building More Capacity

Adding road and transit capacity cannot be the sole strategy for addressing transportation needs. Management strategies can complement capacity expansion projects and offer other ways to make transportation more efficient, more flexible, and less intrusive. They include optimizing the operating performance of the transportation network, creating more travel options, carefully managing road work schedules to minimize travel disruption, increasing operations efficiency, and managing demand to conserve and influence traveler behavior. Collectively, these strategies can relieve stress on the available capacity in peak commute hours and moderate travel impacts.

Managing the System

Management and operation of our current transportation system should be made as efficient as possible. This step should be taken along with investments in new projects. Performance metrics and monitoring for traffic operations and transit to make them as efficient as possible should be a continuing function.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b] (continued)				
507	Jewel Lake Rd.	Dimond Blvd.	International Airport Rd.	Reconstruct Jewel Lake to operate as a 2 lane with center turn lane; **Purpose:** Maintenance and safety; **Facility class:** Major arterial (3); **Length of project:** 2.9 miles; **Length of new sidewalk:** 2.9 miles; **Length of new pathway:** 2.9 miles; **Estimated cost:**[a] $19.9; **Funding source:** Bond; **Linked project(s):** 640.
603	Glenn Hwy./Seward Hwy. Connection	Glenn Hwy./Bragaw St.	Seward Hwy./Tudor Rd.	Construct freeway connection between Airport Heights Rd. and 36th Ave.; includes interchanges at Airport Heights Rd. and 36th Ave., freeway access and egress ramps elsewhere along the alignment; depressed segments of freeway that include the construction of bridges and decking above freeway for cross streets, community amenities, and redevelopment over highway airspace (see the section in this chapter titled Building the Glenn-Seward Highway Connection" for further discussion); **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1) and Ramps (7 & 8); **Length of project:** 4.9 miles; **Length of new sidewalk:** 4.9 miles; **Length of new pathway:** 4.9 miles; **Estimated cost:**[a] $581; **Funding source:** TIP/National Highway System; **Linked project(s):** 209, 215, 303, 309, and 502.
604	48th Ave./Boniface Pkwy. Extension	48th Ave./Bragaw Rd.	Boniface Pkwy./Tudor Rd.	Add new facility—extend Boniface Pkwy. as an expressway parallel to Tudor Rd. connecting at the intersection of 48th Ave. and Bragaw Rd.; **Purpose:** Circulation and access; **Facility class:** Major arterial (3); **Length of project:** 1.2 miles; **Length of new sidewalk:** 1.2 miles; **Length of new pathway:** 1.2 miles; **Estimated cost:**[a] $13.9; **Funding source:** TIP; **Linked project(s):** 213, 416, and 633.
601	Lake Otis Pkwy./ Tudor Rd. Intersection	Lake Otis Pkwy.	Tudor Rd.	Add left- and right-turn lanes where needed to improve capacity and efficiency of existing intersection; finished configuration will have 2 left-turn lanes and one free right-turn lane at each approach; **Purpose:** Circulation and access; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** 0 miles; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $10; **Funding source:** Bond/TIP; **Linked project(s):** 705 and 706.
618	40th Ave. Extension	Arctic Blvd.	Eureka St.	Add new facility—extend 40th Avenue from Arctic Blvd. to Eureka St.; **Purpose:** Capacity; **Facility class:** Collector (5); **Length of project:** 0.4 mile; **Length of new sidewalk:** 0.4 mile; **Length of new pathway:** 0.4 mile; **Estimated cost:**[a] $2.7; **Funding source:** Bond; **Linked project(s):** None.
628	92nd Ave./Academy Dr. Extension	Brayton Dr.	Abbott Rd.	Add new facility—extend 92nd Avenue from Brayton Dr. to Abbott Rd.; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 0.45 mile; **Length of new sidewalk:** 0.45 mile; **Length of new pathway:** 0.45 miles; **Estimated cost:**[a] $4; **Funding source:** TIP; **Linked project(s):** None.
633	Boniface Pkwy. Access Management	Tudor Rd.	Glenn Hwy.	Add access management and related local circulation access to preserve capacity on Boniface Pkwy; **Purpose:** Capacity; **Facility class:** Expressway (2); **Length of project:** 3.1 miles; **Length of new sidewalk:** 3.1 miles; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $20; **Funding source:** TIP; **Linked project(s):** 604.

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Short-Term Projects (2006–2015)[b] (continued)				
808	Mountain Air Dr.	Rabbit Creek Rd.	E. 164th Ave.	Add new facility—extend Mountain Air Dr. from Rabbit Creek Rd. to E. 164th Ave. (extended); **Purpose:** Circulation and access; **Facility class:** Collector; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:** To be determined; **Funding source:** To be determined; **Linked project(s):** None.
809	Unnamed (Heritage Land Bank/Mental Health Trust/Private)	Goldenview Dr.	Potter Valley Rd./Old Seward Hwy.	Add new facility from Goldenview Dr. to Potter Valley Rd./Old Seward Hwy.; **Purpose:** Circulation and access; **Facility class:** Collector; **Length of project:** 1 mile; **Length of new sidewalk:** 0 mile; **Length of new pathway:** 1 mile; **Estimated cost:** To be determined; **Funding source:** To be determined; **Linked project(s):** None.
810	Knik Arm Crossing	Matanuska-Susitna Borough near Point MacKenzie	3rd Ave. at Gambell and Ingra streets	Add new bridge facility across Knik Arm with associated roads connecting to the Anchorage roadway network (as noted in phases below); **Purpose:** Access, circulation, and freight. **Facility class:** National Highway System route—freeway/major arterial; **Phase 1 Length of project:** 6.1 miles, from Matanuska-Susitna Borough side of Knik Arm to East Loop Road just north of the A-C Viaduct (southern Phase 1 limit); **Ultimate Buildout Length of project:** 6.8 miles, from Matanuska-Susitna Borough side of Knik Arm to Ingra-Gambell streets/viaducts at 3rd Ave. (Phase 2);[1] **Length of new sidewalk:** 6.1 miles;[2] **Estimated cost:** $506.1 for Phase 1 and $348.7 for Phase 2 Anchorage side;[3] **Funding source:** National Highway System, State of Alaska, toll-backed bonds, Public Private Partnership, Transportation Infrastructure Finance and Innovation Act (TIFIA), tolls; **Linked project(s):** 502 [1] Phase 2 is the construction of the Ingra-Gambell streets/viaducts to 3rd Ave. from Government Hill. [2] Sidewalks are most likely to be completed in Phase 2. [3] Estimated costs are for the Anchorage side only.
Long-Term Projects (2016–2025)				
302	Seward Hwy./O'Malley Rd. Interchange	Old Seward Hwy.	Seward Hwy.	Add freeway system interchange at Seward Hwy. and O'Malley Rd., and interchange at Old Seward Highway and O'Malley Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Ramps (7&8); **Length of project:** 3.9 miles; **Length of new sidewalk:** 3.9 miles; **Length of new pathway:** 3.9 miles; **Estimated cost:**[a] $60.6; **Funding source:** TIP; **Linked project(s):** 210 and 311.
311	Seward Hwy.	O'Malley Rd.	Rabbit Creek Rd.	Add ramp and pedestrian facility improvements from O'Malley Rd. to Rabbit Creek Rd.; **Purpose:** Circulation, access, and freight; **Facility class:** Freeway (1); **Length of project:** 3 miles; **Length of new sidewalk:** 3 miles; **Length of new pathway:** 3 miles; **Estimated cost:**[a] $9.5; **Funding source:** State general fund; **Linked project(s):** 303.
501	Whitney Rd.	North C St.	Post Rd.	Upgrade Whitney Rd. to urban industrial standards; may include relocation of the Whitney Rd.; **Purpose:** Maintenance, safety, and freight; **Facility class:** Collector (5); **Length of project:** 1.05 miles; **Length of new sidewalk:** 1.05 miles; **Length of new pathway:** 1.05 miles; **Estimated cost:**[a] $7; **Funding source:** TIP; **Linked project(s):** 502; **Priority:** Long term (2016-2025)

Table 8-1. Recommended Road Improvement Projects

Project Number	Facility Name	From	To	Project Purpose and Description
Long-Term Projects (2016–2025) (continued)				
638	Minnesota Dr./Tudor Rd. Interchange	Minnesota Dr.	at Tudor Rd.	Add new facility—construct grade-separated interchange; **Purpose:** Capacity and freight; **Facility class:** Major arterial(3) Ramps (7&8); **Length of project:** Not applicable; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $25; **Funding source:** TIP; **Linked project(s):** 627.
639	Glenn Hwy. HOV Lane	Boniface Pkwy.	Eagle River; Artillery Rd. Interchange	Widen with lanes to the inside with 1 lane each direction designated non-SOV, includes Ship Creek Bridge improvements; **Purpose:** Capacity and freight; **Facility class:** Freeway (I); **Length of project:** 11.3 miles; **Length of new sidewalk:** 0 mile; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $38.3; **Funding source:** TIP; **Linked project(s):** 610, 707, and 710.
702	Elmore Rd. Extension	Rabbit Creek Rd.	DeArmoun Rd.	Add new facility—extend Elmore Rd. from Rabbit Creek Rd. to DeArmoun Rd.; **Purpose:** Circulation and access; **Facility class:** Collector (5); **Length of project:** 1 mile; **Length of new sidewalk:** 2 miles; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $8; **Funding source:** TIP; **Linked project(s):** 805.
708	Rabbit Creek Rd.	Seward Hwy.	Goldenview Dr.	Upgrade to 3-lane arterial; **Purpose:** Capacity; **Facility class:** Minor arterial (4); **Length of project:** 1 mile; **Length of new sidewalk:** 1 mile; **Length of new pathway:** 1 mile; **Estimated cost:**[a] $4.5; **Funding source:** TIP; **Linked project(s):** 702.
709	Railroad. Grade Separation at Spenard Rd. and at C St.	Spenard Rd.	at C St.	Add railroad grade separation at Spenard Rd. near 36th Ave. ($105), and at C St. near Raspberry Rd. ($25); **Purpose:** Maintenance, safety, and freight; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $130; **Funding source:** Other; **Linked project(s):** None.
710	Glenn Hwy. HOV Lane	Eagle River; Artillery Rd. Interchange	Mile 21.5 S. Peters Creek Interchange (Voyles Rd.)	Widen Glenn Hwy. to add an additional non-SOV lane in each direction, including interchange upgrades at Peters Creek Bridge; **Purpose:** Capacity and freight; **Facility class:** Freeway; **Length of project:** 8.1 miles; **Length of new sidewalk:** Not applicable; **Length of new pathway:** Not applicable; **Estimated cost:**[a] $61.8; **Funding source:** TIP; **Linked project(s):** None.
~~**Projects for Which the Funding Priority Is Undetermined**~~				
~~601~~	~~Lake Otis Pkwy./ Tudor Rd. Intersection~~	~~Lake Otis Pkwy.~~	~~Tudor Rd.~~	~~Add left- and right-turn lanes where needed to improve capacity and efficiency of existing intersection; finished configuration will have 2 left-turn lanes and one free right-turn lane at each approach; **Purpose:** Circulation and access; **Facility class:** Not applicable; **Length of project:** Not applicable; **Length of new sidewalk:** 0 miles; **Length of new pathway:** 0 miles; **Estimated cost:**[a] $10; **Funding source:** Bond/TIP; **Linked project(s):** 705 and 706. (The MOA Traffic Engineer, in consultation with DOT&PF, shall provide a report to AMATS Policy Committee within 6 months after Project 213 is open for public use to identify the congestion relief accomplished or expected to be accomplished with full completion of Projects 213 and 416 and quantifying the additional congestion relief that may be accomplished through Project 601.)~~

[a] Estimated costs are in millions of 2004 dollars. [b] Some short-term projects will be completed after 2015.

Note: In addition to the recommended projects identified in this list, existing roadways that are currently not constructed to urban standards may need to be upgraded during the time covered by the LRTP (through 2025). Road upgrade projects typically result in the same number of lanes for the road. Improvements may also include sidewalks, pathways, and accommodations that comply with requirements of the Americans with Disabilities Act.

Source: CH2M HILL

CHAPTER 9. Funding

Introduction

Funding for implementation of the recommended LRTP comes from federal, state, and local sources. This financial element of the LRTP includes estimates of costs that would be required to implement the LRTP as well as estimates of existing and contemplated sources of funds available to pay for these improvements.

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) planning regulations for metropolitan areas stipulate that all LRTPs must include a financial plan that demonstrates the consistency of proposed transportation investments with available and projected sources of revenue. The LRTP identifies multimodal improvement, pavement preservation, and enhancement needs for the next 20 years.

The cost to implement all elements of the recommended LRTP over the next 20 years and to maintain and operate the transportation system is more than $3.7 billion, as shown in Table 9--1.

All tables in this chapter reflect planning-level cost estimates for use in demonstrating funding constraints, according to FHWA guidance. All funding is subject to federal, state, and local appropriation.

Table 9-1. Recommended Plan Cost

Item	Cost ($)[a]
Roads	
National Highway System	1,281
Non-National Highway System	741
Pavement preservation	188
Operation and maintenance	676
Transit	
Capital	107
Operating	390
Railroad grade separations	130
Enhancements	87
Non-motorized trails/walkways	
Maintenance	12
Congestion management	114
Planning, studies, and coordination	6
Total	**3,732**

[a] All costs are in millions of 2004 dollars.

Note:
Earmark funding for the Knik Arm Crossing project has been accounted for separately and does not affect the anticipated funding plan described here. Knik Arm Crossing funding details can be found in Chapter 12.

Source: CH2M HILL

Projected revenue from identifiable sources totals $3.7 billion. See Table 9-2.

Revenues appear adequate to implement all elements of the LRTP. The following paragraphs discuss each element of the funding plan.

Roadway Capital Costs and Estimated Revenues

Roadway capital projects are divided into two categories: National Highway System (NHS) projects and non-NHS projects. This distinction is important because some federal funds are specifically designated only for use on the NHS.

The cost of implementing NHS roadway improvement recommendations contained in the Anchorage Bowl and Chugiak-Eagle River LRTPs will be approximately $1.3 billion. See Table 9-3. Other NHS-related expenditures include pavement rehabilitation, rut repair, and preservation; they are expected to cost an additional $76 million. Federal revenues designated for the NHS, federal earmarks, and state bonding and capital program sources projected to be available to pay for NHS improvements are about $811 million. The balance of $546 million can be covered by a portion of available non-NHS revenues.

Table 9-2. Projected Plan Revenue Sources

Item	Revenue ($)[a]
Federal funding	
Federal Highway Administration	1,450
Federal Transit Administration	140
Legislative transportation earmarks	160
Other federal programs	50
Railroad grade separation earmarks	130
State	
General revenue federal match	119
Capital program	376
Operations and maintenance	219
Municipality of Anchorage	
Road bonds and federal match	265
General fund—road and trail maintenance	469
General fund—public transportation operation	358
Transit capital	
Non-motorized capital	26
	15
Total	**3,777**

[a] All revenues are in millions of 2004 dollars. Revenue projections are based on historical data from the DOT&PF and MOA.

Note:
Earmark funding for the Knik Arm Crossing project has been accounted for separately and does not affect the anticipated funding plan described here. Knik Arm Crossing funding details can be found in Chapter 12.

Source: CH2M HILL

Table 9-3. Comparison of Costs and Revenues Available to Implement National Highway System LRTP Projects

Item	Cost ($)[a]
Roadway improvements (LRTP projects only)	1,341
Roadway pavement preservation	76
Total Cost	**1,417**
NHS revenues available	
FHWA designated NHS funds	421
State match funds	42
Federal earmarks	160
State capital program	188
Non-NHS revenues available (see Table 9-4)	606
Total Revenue	**$1,417**

[a] All costs and revenues are in millions of 2004 dollars.

Note:
Earmark funding for the Knik Arm Crossing project has been accounted for separately and does not affect the anticipated funding plan described here. Knik Arm Crossing funding details can be found in Chapter 12.

Source: CH2M HILL

Table 9-4 shows similar cost-revenue results for the non-NHS portion of the LRTP. Non-NHS revenue sources can be used more flexibly than NHS funding. Major program elements for the non-NHS funding include roadway improvements and rehabilitation projects; pavement preservation; the safety improvement program; enhancement program; congestion mitigation and air quality (CMAQ) program; and planning, studies, and coordination. Table 9-4 shows estimated expenditures for each category of the non-NHS program. The amount of money spent on CMAQ projects has been increasing during the past few years (rising from $4.7 million in 2001 to $6.01 million in 2004).

Table 9-4. Comparison of Costs and Revenues Available to Implement Non-National Highway System LRTP Projects

Item	Cost ($)[a]
Roadway improvements (Anchorage Bowl LRTP)	554
Roadway improvements (Chugiak-Eagle River LRTP)	91
Roadway pavement preservation	108
Roadway safety projects	35
Enhancements	87
CMAQ	79
Planning, studies, and coordination	6
Total Cost	**960**
Total FHWA revenues	1,029
Total state and local match revenues	103
State capital program	188
MOA road bonds	239
MOA non-motorized capital	15
Other federal programs	40
Total Revenue	**1,614**
Non-NHS revenues available for NHS or other projects	654

[a] All costs and revenues are in millions of 2004 dollars.

Note:
Earmark funding for the Knik Arm Crossing project has been accounted for separately and does not affect the anticipated funding plan described here. Knik Arm Crossing funding details can be found in Chapter 12.

Source: CH2M HILL

Funding from property taxes depends on the willingness of the Municipal Assembly and the Administration to allocate money for this purpose and on support of the general public. Many other public transportation systems receive allocations from other funding sources (such as a percentage of sales tax, gasoline tax, or vehicle registration tax).

Earmarks and Other Federal Funding

Congressional transportation earmarks are a special category of revenues that cuts across all categories of transportation projects. The MOA was recipient of some earmark projects and one High Priority project from the Transportation Equity Act for the 21st Century (TEA-21) funds. Almost $11 million was earmarked in TEA-21 for the Ship Creek Access project. Some of this money has subsequently been diverted, through federal legislation, to other projects. ARRC also has received earmark money under FTA Section 5309 and anticipates additional earmarks in the future. ~~Work on the environmental documentation for the Knik Arm crossing project is being carried out with earmarked monies.~~

Another earmark project example is the Ship Creek Intermodal Facility, which will develop a transportation hub (bus, rail, parking, and pedestrian facilities) in the Ship Creek area. In recent 6-year federal transportation reauthorization legislation cycles, from $9 billion to $11 billion has been designated by Congress for earmark project funding. The LRTP program estimates funding of $160 million will be derived from earmarks (not including Knik Arm Crossing earmark funds).

In addition to the federal transportation funding allocations made by the FHWA and FTA to states and urban areas, both administrations have other discretionary funding programs that are awarded on a competitive basis. Other federal agencies, such as the U.S. Environmental Protection Agency, Energy, and Health and Human Services, have various programs that also may be tapped for transportation funding. The LRTP program estimates $50 million in funding will be derived from these supplemental sources.

Railroad Grade Separation Funds

Revenue to fund major railroad grade separations is estimated to come from federal earmarks or other specially designated funding sources. The total amount for this purpose is $130 million.

Summary of LRTP Costs and Application of Revenues

Table 9-6 summarizes costs for the recommended LRTP and the allocation of available revenues to fund implementation.

Table 9-6. LRTP Cost and Revenue Allocation Summary, 2005–2025
All costs and revenues are shown in 2004 millions of dollars

Operation and Maintenance Cost Items	Cost ($)	Revenue Sources	Revenue ($)
Roadways	676	State funds	219
		MOA general budget funds	457
Non-motorized (trails)	12	MOA general budget funds	12
Transit operations	390	Transit operations	390
People Mover ($320.7), Glenn Highway express bus service ($7.9), AnchorRIDES ($61.1)		MOA general budget and new source ($306.2),), FTA demonstration grant—Glenn Highway express bus service deployment ($15.4), CMAQ ($19.4), FTA ($38.9),other federal funds ($9.9)	
Total Operations and Maintenance Costs	**1,078**	**Total Revenue Sources**	**1,078**

Note:
Earmark funding for the Knik Arm Crossing project has been accounted for separately and does not affect the anticipated funding plan described here. Knik Arm Crossing funding details can be found in Chapter 12.

Source: CH2M HILL

Roadway Operations and Maintenance

Adequate funding of street operation and maintenance functions is important to ensure that the road system continues to function well. The operation and maintenance functions include activities such as signing, marking, lighting, street sweeping, traffic signal system operation, snow clearing, sanding, pothole repair, landscaping, and sidewalk maintenance.

The State of Alaska and the MOA jointly share the responsibility of maintaining roadways in the Anchorage Bowl. For the most part, the MOA maintains municipality-owned roads and the State of Alaska maintains state-owned roads. However, in cases where efficiencies can be achieved, the maintenance responsibilities have been shifted through formal maintenance agreements. The State of Alaska contracts with the MOA for certain operations and maintenance functions.

The State of Alaska and the MOA spent almost $31 million in 2004 for operations and maintenance of the public road system in the Anchorage Bowl and the Chugiak-Eagle River area. (See Table 9-7.) New roads and lanes to be built as a part of the LRTP implementation will add maintenance cost of about $1.6 million per year. During the 2005–2025 LRTP period, operation and maintenance costs for the road system are projected to be $676 million.

State and local maintenance budgets have traditionally been very tight. As a result, there is a tendency to defer needed roadway upkeep because of lack of funds. The state legislature appropriates money for State of Alaska highway maintenance out of the general fund. Whether the road maintenance needs will be adequately funded depends on the priority given this function by the Legislature.

Deferring maintenance has a hidden price. Preventative maintenance programs, such as crack sealing, can substantially prolong the life of a roadway, reducing the frequency and total cost of rehabilitation projects.

A factor driving up the cost of roadway maintenance is pavement rutting caused by studded snow tires. The 2004-2006 Transportation Improvement Program (TIP) indicates that roadway-rutting problems will cost approximately $25.1 million to rehabilitate during the 3-year period. Under a recently adopted State of Alaska new tax on tires, motorists pay $2.50 tax per tire sold in Alaska and pay $5.00 for tires with studs. The Alaska Department of Revenue estimates the measure will raise about $3.2 million per year for road repair and maintenance.

Table 9-7. Annual Highway Operation and Maintenance Funding

Item	Cost ($)[a]
2004 annual roadway operations and maintenance cost (local)	21.4
2004 roadway operations and maintenance cost (state)	9.6
Total 2004 roadway operations and maintenance costs	31.0
Annual additional roadway operations and maintenance cost with full LRTP implementation	1.65
2005-2025 roadway operations and maintenance cost with LRTP implementation	676.2

[a] All costs are in millions of 2004 dollars.

Notes:
Earmark funding for the Knik Arm Crossing project has been accounted for separately and does not affect the anticipated funding plan described here. Knik Arm Crossing funding details can be found in Chapter 12.

Costs include traffic engineering operations and roadway operations and maintenance, excluding drainage system maintenance.

MOA and DOT&PF costs have been adjusted for intergovernmental subcontracts.

Sources: MOA 2005 Approved Operating Budget, MOA Street Operations and Maintenance Department, DOT&PF Central Region Operations and Maintenance, and CH2M HILL

Non-motorized (Trails and Walkways) Maintenance Costs

Estimated maintenance costs for trails and walkways are derived from operations and maintenance department accounts and information from Chugiak-Eagle River Parks, Recreation and Community Development. The existing (2004) budget for trail and walkway maintenance was identified as a baseline. The cost of maintainingnew trails and walkways in the LRTP was derived by applying unit costs per mile from current cost information. Total 2005–2025 maintenance costs for trails and walkways are projected to be $11.94 million.

Table 9-8. Trail and Walkway Maintenance Funding

Item	Amount ($)[a]
2004 annual trail/walkway maintenance cost	0.49
Additional annual maintenance cost for new LRTP trails/walkways	0.15
Total annual trail/walkway maintenance cost with full LRTP implementation	0.64
2005-2025 trail/walkway maintenance cost with LRTP implementation	11.94

[a] All costs and revenues are in millions of 2004 dollars.

Sources: MOA and CH2M HILL

Alaska Railroad Capital and Operating Costs and Estimated Revenues

Capital funding for selected Alaska Railroad Corporation (ARRC) improvements is estimated to originate from the FTA and the Federal Railroad Administration (FRA). The operation and maintenance of capital facilities is the responsibility of the ARRC. The railroad reports systemwide operating, capital, and funding sources for purposes of the National Transit Database. FTA formula programs (Urbanized Area Formula funds and Fixed Guideway Modernization funds) are calculated on passenger revenue vehicle miles and rail route miles. Table 9-9 shows ARRC capital and operation costs and revenues.

Table 9-9. Alaska Railroad Corporation Capital and Operation Funding

Item	Cost ($)	
	Estimate, Annual	20-Year LRTP[a]
Operations		
Total cost of operating system	15	300
Existing passenger budget	16	320
Additional operations cost	1	(20)
New passenger and other revenues from expanded fleet	0.75	15
New source of revenues needed to operate expanded fleet	0.25	(5)
Capital		
Total capital cost of system	10	200
FTA Section 5307 grant funding	6	120
FTA Section 5309 earmarks and other grants	1	30
FRA funding	1	30
Alaska Railroad Corporation internally generated capital applied to transit operations	1	20
Total annual revenues to finance capital costs	10	200

[a] All costs and revenues are in millions of 2004 dollars.

Source: Alaska Railroad Corporation

CHAPTER 10. Implementation Plan

Introduction

This LRTP reinforces and sustains the economic health, livability, and attractiveness of Anchorage as a northern city and gateway to Alaska. The recommendations promote transportation choices and call for reducing and managing demand for automobile travel. The LRTP is guided by the Anchorage 2020 comprehensive plan with additional housing placed in the downtown area. MOA land use and transportation planners worked closely in developing the land use allocation details that underpin the LRTP.

Implementation of the LRTP recommendations will be contingent on many factors, some of which cannot now be foreseen. But the LRTP can be accomplished with strong political leadership, close collaboration among government jurisdictions, broad public support, and commitments to funding. The nature of the future transportation system can be influenced by policy recommendations. To shift the transportation network from where we are now to where we want to be in 2025, policy items and action recommendations need to be addressed.

Steady and continuous focus and effort are mandatory. Regular reassessment of progress, system performance, and traffic congestion will aid in prioritizing implementation actions.

Policy recommendations, action items, or both are identified for the issues and transportation elements below.

Anchorage 2020, Land Use, and Title 21

Policy Recommendations

- Continue to pursue the goals of Anchorage 2020; complete the Land Use Map, which details the land use changes; and shape Title 21 land-use codes to implement the development standards and densities envisioned in Anchorage 2020
- Continue to pursue development of subarea plans that bring further definition to development of neighborhoods and employment areas and inform future updates to the LRTP and land-use decisions
- Continue database maintenance and use of the Anchorage travel model as a tool for forecasting—to allocate land use, estimate trip generators and attractors, and project travel patterns—and for measuring transportation system performance
- Monitor effects from the Knik Arm crossing project on the scheduling of Anchorage 2020 implementation and future transportation projects
- Incorporate parking requirements in Title 21 and employment center plans that avoid too-large parking lots and parking management to encourage strategies for single-occupancy vehicle (SOV) reduction
- Update the Anchorage 2020 comprehensive plan to reference an Anchorage Non-motorized Transportation Plan that replaces the Areawide Trails Plan (MOA, 1997) and includes all forms of non-motorized transportation (paved and non-paved trails, sidewalks, Americans with Disabilities Act [ADA] amenities, and bike lanes)
- Explore utilization of congestion mitigation and air quality (CMAQ) funding to encourage smart growth and livable communities
- Base new parking standards on best available information about the parking required for various land uses
- Promote the development of policies and ordinances that guide future location and phasing of high-traffic land uses

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