

Purpose of and Need for Action

2.1 Purpose

The purpose of the proposed action is to construct improvements to the NSH corridor between Rabbit Creek Road and 36th Avenue. The improvements should provide additional capacity, connectivity, and safety enhancements.

The combined improvements should compose a viable transportation project that addresses current and future travel demand and mobility needs for the NSH corridor within the framework of the National Environmental Policy Act (NEPA) process.

2.2 Need

The comprehensive plan developed to guide growth for the MOA (2020 Plan, MOA, 2001b) and the 2001 Long Range Transportation Plan (LRTP) for the Anchorage Bowl (MOA, 2001a) project substantial population growth and economic development in the region served by the NSH corridor in the study area. These plans and the policies identify projected growth in urban areas and encourage in-filling of existing developed areas. Upgrades and new connections to the NSH would provide additional capacity and facilities for transit and pedestrians to meet the travel demands generated by planned growth in the region, including inter-regional and intra-regional freight movements. Community needs also would be addressed through integration of travel system management (TSM) and travel demand management (TDM) strategies.

Improvements to the NSH corridor from Rabbit Creek Road to 36th Avenue would address several community and transportation needs. The most critical needs are discussed below.

2.2.1 Increase Corridor Capacity to Accommodate Recent Growth and Future Demand

Improvements of the NSH corridor in the study area are needed to address recent and anticipated growth in areas served by the corridor. The highway already is performing at less-than-desirable levels during peak demand. Without improvements, traffic flow will continue to deteriorate.

Socioeconomic indicators show that future growth in residential areas and Anchorage employment will continue to increase the use of the NSH corridor. Anchorage's population grew nearly 15 percent during the last decade while employment grew nearly 10 percent between 1995 and 2000. Housing data show strong growth rates in the South Anchorage area, which is served primarily by the NSH transportation corridor. AMATS forecasts show that transportation capacity within the corridor is inadequate to accommodate projected travel demand. Improvements proposed would accommodate growth through the project design year of 2035.

As a result of recent growth, a significant portion of the NSH mainline already operates at or over capacity during morning and afternoon commutes. Additionally, many of the signalized intersections for the east-west crossing arterials along the corridor are over capacity during the morning and evening peak hours, and other north-south roads near the NSH corridor – Lake Otis Parkway and OSH – are highly congested during peak hours.

The proposed action would be designed to increase level of service (LOS) throughout the study area corridor. LOS is a measurement of roadway performance used for roadway segments and street intersections. It reflects how well the traffic demand is accommodated by available capacity and the relative ease of traffic flow on a scale of A to F. Free-flow traffic is rated LOS A, and at the other end of the spectrum, congested conditions are rated LOS F.

Table 2-1 summarizes the 2002 volume of traffic for segments of the NSH within the study area. Inclusion of the LOS values identifies locations that are affected by congested traffic. Traffic volume taxes capacity of the NSH corridor segments between Dimond Boulevard and 36th Avenue during the afternoon commute periods and between 76th Avenue and Tudor Road during the morning commute. These traffic conditions are unstable, often deteriorating to stop-and-go conditions with extremely limited maneuverability. They are exacerbated by snow and ice during winter months.

TABLE 2-1
Mainline Levels of Service for New Seward Highway in 2002

NSH Segment	2002 ADT	AM Peak Hour Density, ^a LOS ^b	PM Peak Hour Density, ^a LOS ^b
Rabbit Creek Road to DeArmoun Road	14,678	6.0, LOS A	5.6, LOS A
DeArmoun Road to Huffman Road	23,001	9.3, LOS A	10.9, LOS A
Huffman Road to O'Malley Road	28,655	15.8, LOS B	16.6, LOS B
O'Malley Road to Dimond Boulevard	37,975	19.2, LOS C	21.5, LOS C
Dimond Boulevard to 76th Avenue	55,896	20.5, LOS C	27.4, LOS D
76th Avenue to Dowling Road	61,430	26.0, LOS D	29.5, LOS D
Dowling Road to Tudor Road	60,942	27.7, LOS D	36.8, LOS E
Tudor Road to 36th Avenue	48,504	16.3, LOS B ^c	29.9, LOS D

^a Density = the number of passenger cars per mile per lane (Transportation Research Board, *Highway Capacity Manual*, Report 209, 2000)

^b Values provided for the peak commute direction; AM = northbound and PM = southbound

^c NSH transitions from a controlled access freeway to a major urban arterial at the 36th Avenue intersection. The availability of three lanes in each direction for this segment decreases the density of vehicles.

■ = low level of service (LOS)

ADT = average daily traffic

Sources: CH2M HILL, and ADOT&PF, Central Region, Traffic Section, for 2002 traffic volumes

Low LOS at freeway ramp intersections with arterials along the corridor compound congestion on the NSH freeway. Table 2-2 summarizes 2002 morning and evening peak-hour LOS performance for these intersections. Critical capacity deficiencies in intersection operation are evident at several intersections between O'Malley Road and 36th Avenue during the afternoon commute periods.

TABLE 2-2
Signalized Intersection Levels of Service for New Seward Highway in 2002

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
NSH northbound and Huffman	C	A
NSH southbound and Huffman	A	B
NSH northbound and O'Malley	C	D
NSH southbound and O'Malley	A	C
NSH northbound and Dimond	A	B
NSH southbound and Dimond	A	E
NSH northbound and Dowling ^a	D	D
NSH southbound and Dowling ^a	C	F
NSH northbound and Tudor	C	B
NSH southbound and Tudor	C	F
NSH and 36th Avenue	C	F

■ = Low level of service (LOS)

^aDowling Road was under construction in 2002.

Source: CH2M HILL

Population growth and economic expansion from 2000 to 2035 are projected to increase regional travel demand by about 45 percent (CH2M HILL, 2003e). For a future regional scenario in which only currently approved and funded transportation improvements are included, mobility will be severely impaired and transportation LOS will deteriorate to unacceptable levels over extended time periods.

Table 2-3 lists 2035 estimated daily traffic volumes and corresponding peak-hour LOS for each segment along the NSH freeway without improvements. Table 2-4 summarizes estimated 2035 morning and evening peak-hour LOS for signalized arterial intersections crossing the corridor. The LOS F values represent severe driver delays expected at each intersection without NSH improvements through the design year 2035.

Traffic congestion contributes to air quality problems. Vehicles delayed in traffic burn excessive fuel and emit more pollution than cars that are moving freely. Improvements to mitigate congestion along the NSH would in turn have a positive effect on air quality along this route. Anchorage has relatively high levels of carbon monoxide pollution compared with most other cities. The 1991 LRTP (MOA) noted that 80 percent of Anchorage's winter carbon monoxide problem comes from motor vehicles. Cold climate and strong temperature inversions exacerbate the carbon monoxide problem.

TABLE 2-3

Projected Levels of Service for New Seward Highway Mainline in 2035 (Without Improvements)

NSH Segment	Estimated 2035 ADT	AM Peak Hour LOS	PM Peak Hour LOS
Rabbit Creek Road to DeArmoun Road	30,000	A	A
DeArmoun Road to Huffman Road	36,200	B	B
Huffman Road to O'Malley Road	54,100	D	B
O'Malley Road to Dimond Boulevard	60,000	F	C
Dimond Boulevard to 76th Avenue	80,600	F	D
76th Avenue to Dowling Road	88,800	F	D
Dowling Road to Tudor Road	91,700	F	F
Tudor Road to 36th Avenue	83,800	F ^a	F

■ = Low level of service (LOS)

^aFreeway segment will be constrained by 36th Avenue intersection. Queues will result in intersection operation at LOS F.

Source: CH2M HILL

TABLE 2-4

Projected Levels of Service for New Seward Highway Signalized Intersections in 2035 (Without Improvements)

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
NSH northbound and Huffman	C	B
NSH southbound and Huffman	B	B
NSH northbound and O'Malley	F	E
NSH southbound and O'Malley	A	B
NSH northbound and Dimond	D	C
NSH southbound and Dimond	B	F
NSH northbound and Dowling	E	E
NSH southbound and Dowling	A	D
NSH northbound and Tudor	B	B
NSH southbound and Tudor	D	F
NSH and 36th Avenue	F	F

■ = poor level of service (LOS)

2.2.2 Improve System Connectivity and Linkage of Existing Roadways

The lack of east-west arterial crossings and continuity along the NSH controlled-access facility intensifies traffic congestion and service problems. The NSH bisects the city and carries more traffic than any other north-south corridor within Anchorage. Without east-west roadway connectivity across the NSH, the pedestrian, bicycle, and motorized travel and circulation is disrupted in many locations.

Previous studies and analyses of recent origin-destination travel patterns show that the NSH restricts efficient east-west traffic flow in the study area. The 1991 LRTP (MOA) identified NSH crossings at 92nd Avenue, 76th Avenue, 68th Avenue, and International Airport Road (IAR) as “missing links” within the transportation network. Discontinuous east-west routes tend to force circuitous routes and short trips on and off the NSH, adding to congestion on the NSH and existing east-west streets.

Figure 2-1 illustrates these east-west travel barriers and circuitous traffic patterns within the corridor. A number of east-west arterials are not continuous between Lake Otis Parkway and Minnesota Drive, two major north-south roadways that parallel the NSH.

Improvements to the NSH and its connectivity with east-west arterials are expected to improve mobility, in turn upgrading the functionality of the rest of the transportation network. The travel times required for reaching many destinations by vehicle, public transit, bicycle, and pedestrian modes also would be reduced by shortened travel distance.

2.2.3 Enhance Intermodal Transportation

The NSH corridor supports intermodal transportation—transport relying on more than one mode of travel—in Anchorage, the surrounding areas, and other parts of the state. This

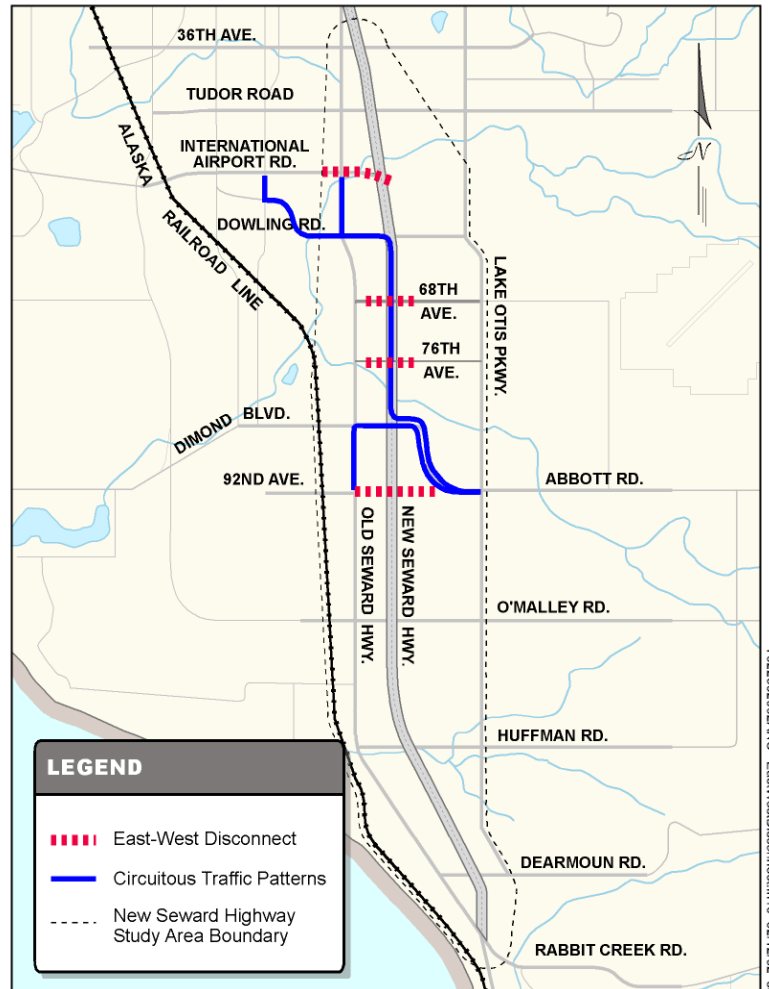


FIGURE 2-1
East-West Disconnects and Circuitous Travel Patterns

important highway link facilitates the movement of goods and people between marine, rail, and air connections. Major intermodal facilities receiving and discharging freight and visitor or local resident travel through movements on the NSH corridor include the Port of Anchorage, the Alaska Railroad operated by the Alaska Railroad Corporation, and the Ted Stevens Anchorage International Airport. Also contributing to mobility in Anchorage are public transit and the trails and other pedestrian and bicyclist facilities.

Improving the ability of the NSH in the study area to connect sectors of intermodal transportation will increase mobility, serve regional growth, and enhance transportation efficiency and safety.

2.2.4 Upgrade Design Features to Meet Industry Standards and Improve Safety

NSH corridor design features need to be brought up to current standards. The deficient elements include structures, illumination, and roadway geometric design. In addition, freeway flow, interchange, and frontage road system improvements can promote safer travel.

Within the study area, freeway ramps are too closely spaced for efficient operation in some cases. In addition, the geometry of ramp connections to frontage roads can be designed more efficiently to reduce merging conflicts and queuing.

Most structures in the freeway corridor do not meet current standards for live-load ratings. Seismic design retrofits to pier columns and possibly the pier footings of multispan bridges are needed. Dimond Boulevard and Dowling Road undercrossings have less than the current roadway clearance standard of 16.5 feet. If the Campbell Creek bridge structures are raised for future extension of the Campbell Creek Trail, they will require complete reconstruction of abutments. Additionally, past studies have documented the need for continuous illumination throughout the study area (ADOT&PF, 1999).

The corridor frontage roads have narrow shoulders. In many areas, the structural section and pavement conditions have deteriorated to the extent that complete foundation reconstruction may be required. Another design concern is the lack of a continuous multiuse trail system and bicycle route. The MOA *Areawide Trails Plan* (1996a) identifies the need for this route for the length of the corridor. The only existing pedestrian facility is a discontinuous, paved multiuse trail west of the NSH between Huffman and O'Malley roads.

Design improvements on the NSH are needed to reduce accidents and provide a safer transportation network. Table 2-5 summarizes vehicle accident data for the 1999 through 2001 along the NSH corridor. The data show a total of 506 non-moose related accidents in the corridor and an increase in the accidents volume of 67 percent from 1999 to 2001. In addition, the number of moose-vehicle collisions doubled from 6 to 12 during the time frame analyzed. Fatalities reported in the NSH were zero in 1999, two in 2000, and one in 2001.

The highest number of accidents occur in the vicinity of the 36th Avenue at-grade intersection at the north end of the study area. This intersection provides the transition from the controlled-access freeway to the south to the uncontrolled-access roadway continuing north.

TABLE 2-5
Vehicle Accident Data for the Study Area, 1999-2001

NSH Corridor Segment	Total 1999 Accidents (Moose Collisions)	Total 2000 Accidents (Moose Collisions)	Total 2001 Accidents (Moose Collisions)
Rabbit Creek Road to DeArmoun Road	0 (0)	1 (1)	1 (1)
To Huffman Road	6 (0)	7(0)	11 (0)
To O'Malley Road	9 (1)	9 (1)	10 (1)
To Dimond Boulevard southbound ramp	18 (1)	45 (1)	44 (5)
To 76th Avenue southbound ramp	4 (0)	7 (0)	13 (2)
To Dowling Road northbound ramp	3 (0)	11 (1)	22 (1)
To Tudor Road northbound ramp	26 (3)	25 (5)	37 (1)
To 36th Avenue intersection	59 (1)	67 (0)	71 (1)
Totals	125 (6)	172 (9)	209 (12)
Increase compared to 1999		38%	67%

Source: Alaska traffic accident data, 1999-2001 (ADOT&PF, 2000, 2002, and 2003a).

Moose accidents doubled from 1999 to 2001 and continue to be a problem at certain areas such as O'Malley Road to Dimond Boulevard and at Dowling Road.

Reconstruction of the NSH is needed to reduce the number of accidents. Updating the freeway and intersections to modern design standards, improving sight-distances, and providing new and improved signing, striping, and illumination would improve safety in the NSH corridor and reduce the number of accidents. Safety and capacity enhancements at 36th Avenue, in particular, can improve traffic flow and reduce the accidents at this highway transition area. In addition, safety measures, including fencing, can be implemented to reduce the number of moose-vehicle collisions in the NSH corridor.