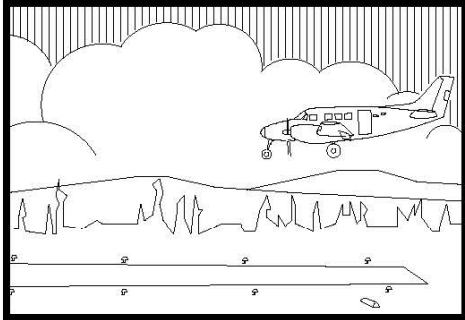


DESIGN STUDY REPORT

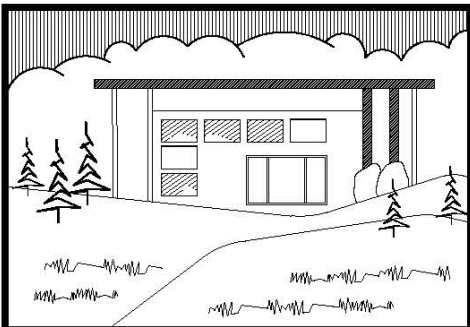
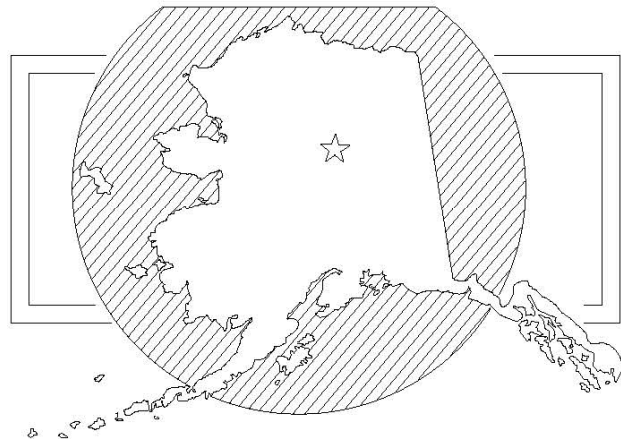
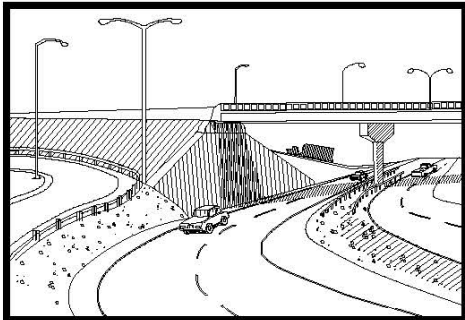
3rd Street Widening

0670001 / Z625410000



STATE OF ALASKA

Department of Transportation
and Public Facilities

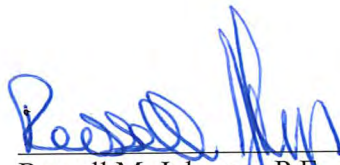


NORTHERN REGION

November 2018

DESIGN APPROVAL
3RD STREET WIDENING
PROJECT NO. 0670001 / Z625410000

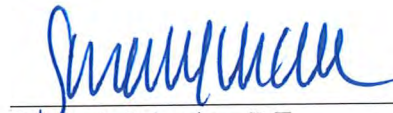
Requested by:


Russell M. Johnson, P.E.
Engineering Manager
Northern Region

11/1/2018

Date

Design Approval
Granted:


Sarah E. Schacher, P.E.
Preconstruction Engineer
Northern Region

11/19/2018

Date

Distribution: NR Design Directive 16-02 Distribution

DESIGN STUDY REPORT
FOR
3RD STREET WIDENING
PROJECT NO. 0670001/Z625410000

PREPARED BY: Travis G. Hogins, P.E.
UNDER THE SUPERVISION OF: Gary L. Jenkins II, P.E.



ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION DESIGN AND ENGINEERING SERVICES
NOVEMBER 2018

3RD STREET WIDENING
PROJECT NO. 0670001/Z625410000

Table of Contents

INTRODUCTION/HISTORY	1
PROJECT DESCRIPTION	1
DESIGN STANDARDS	5
DESIGN EXCEPTIONS AND DESIGN WAIVERS	6
DESIGN ALTERNATIVES	6
3R ANALYSIS	6
TRAFFIC ANALYSIS	6
HORIZONTAL/VERTICAL ALIGNMENT	7
TYPICAL SECTIONS	8
PAVEMENT DESIGN	11
PRELIMINARY BRIDGE LAYOUT	11
RIGHT-OF-WAY REQUIREMENTS	11
MAINTENANCE CONSIDERATIONS	12
MATERIAL SOURCES	13
UTILITY RELOCATION & COORDINATION	13
ACCESS CONTROL FEATURES	14
PEDESTRIAN/BICYCLE (ADA) PROVISIONS	15
SAFETY IMPROVEMENTS	16
INTELLIGENT TRANSPORTATION SYSTEM FEATURES	16
DRAINAGE	16
SOIL CONDITIONS	17
EROSION AND SEDIMENT CONTROL	17
ENVIRONMENTAL COMMITMENTS	18
WORK ZONE TRAFFIC CONTROL	18
VALUE ENGINEERING	18
COST ESTIMATE	18
LOCATION MAP	Figure 1
PROJECT LIMITS	Figure 2
INTERSECTION ENLARGEMENTS	Figure 3
TYPICAL SECTIONS (3RD STREET)	Figure 4
TYPICAL SECTIONS (STEESE EXPRESSWAY)	Figure 5
ROW ACQUISITIONS	Table 1
MAINTENANCE LANE MILES	Table 2
UTILITY RECONSTRUCTS	Table 3
DRIVEWAY REMOVAL	Table 4

DESIGN CRITERIA AND DESIGN DESIGNATION	Appendix A
ENVIRONMENTAL DOCUMENT FONSI	Appendix B
PAVEMENT DESIGN	Appendix C
PRELIMINARY PLAN SHEETS	Appendix D
RIGHT-OF-WAY ACQUISITIONS GRAPHIC	Appendix E

List of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ATB	Asphalt Treated Base
AADT	Annual Average Daily Traffic
ARP	Alaska Renewable Pavement
FPDM	Alaska Flexible Pavement Design Manual
DOT&PF	State of Alaska Department of Transportation and Public Facilities
ESCP	Erosion and Sediment Control Plan
ESAL	Equivalent Single Axle Load
FHWA	Federal Highway Administration
FNSB	Fairbanks North Star Borough
FONSI	Finding of No Significant Impact
GU	General Use
General Policy	GP
HMA	hot mix asphalt
HPCM	Alaska Highway Preconstruction Manual
IES	Illuminating Engineering Society
ITS	Intelligent Transportation System
LOS	Level of Service
mph	miles per hour
ROW	right-of-way
SWPPP	Storm Water Pollution Prevention Plan
sec/veh	seconds per vehicle
TWLTL	two-way left-turn lane
TMC	Traffic Management Center
vehicles per day	vpd

INTRODUCTION/HISTORY

The State Alaska Department of Transportation and Public Facilities (DOT&PF) in cooperation with the Alaska Division Office of the Federal Highway Administration (FHWA) proposes to reconstruct 3rd Street between the Old Steese Highway and Hamilton Avenue and upgrade the Steese Expressway from the Chena River Bridge to College Road, in Fairbanks, Alaska (See Figure 1).

3rd Street is a two-lane facility that primarily serves commercial land uses with a 2015 Average Annual Daily Traffic (AADT) of 13,302. The Steese Expressway is a four-lane facility with a 2015 AADT of 27,576. The intersection of 3rd Street and Steese Expressway experiences a crash rate of nearly twice the statewide average for a similar intersection, and operates at an existing year 2017 Level of Service (LOS) C. The 3rd Street and Eagle Avenue intersection experiences long queues for northbound left turning movements onto 3rd Street during peak hours, and operates at an existing year 2017 LOS E.

The proposed design described in this Design Study Report (DSR) is nearing the final stages and may accommodate minor change(s) prior to developing final plans, specifications, and estimate construction documents.

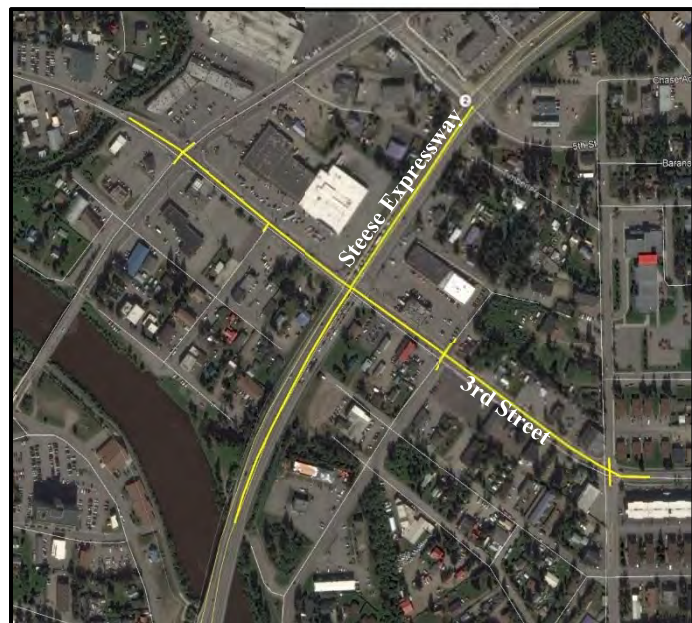


Figure 1

PROJECT DESCRIPTION

The 3rd Street Widening project includes:

- additional turn and through lanes and raised medians along 3rd Street;
- improved pedestrian facilities meeting Americans with Disabilities Act (ADA) guidelines;
- lengthened left-turn lanes on the Steese Expressway;
- a roundabout at 3rd Street and Eagle Avenue;
- a new two-way left turn lane from Eagle Avenue to Hamilton Street;
- and dual east-bound and west-bound left-turn lanes at 3rd Street and Steese Expressway.

The purpose and need for this project is to construct improvements that will decrease delay through improved traffic flow and increase safety for motorized and non-motorized users.

3rd Street Corridor Existing Conditions

The 3rd Street project corridor is approximately 0.40 miles long, an east/west facility, and is functionally classified as a minor urban arterial with a posted and design speed of 30 miles per hour (mph). The roadway facility is undivided with two 12-foot lanes, curb and gutters, striped left-turn lanes, and abutting sidewalk varying in width from 3.5 to 6 feet in width. The 3rd Street and Steese Expressway corridor within the project limits is a fully developed, mixed commercial district. The project corridor contains both General Commercial and General Use (GU) Fairbanks North Star Borough (FNSB) zoning districts.

Steese Expressway Corridor Existing Conditions

The Steese Expressway project corridor is approximately 0.36 miles long, a north/south facility, and functionally classified as an expressway with a posted speed of 45 mph and a design speed of 50 mph. The roadway is a divided facility with four 12-foot lanes, controlled access facility, curb and gutters, curb channelized left-turn lanes, a multi-use pathway runs along both sides outside of the controlled access limits.

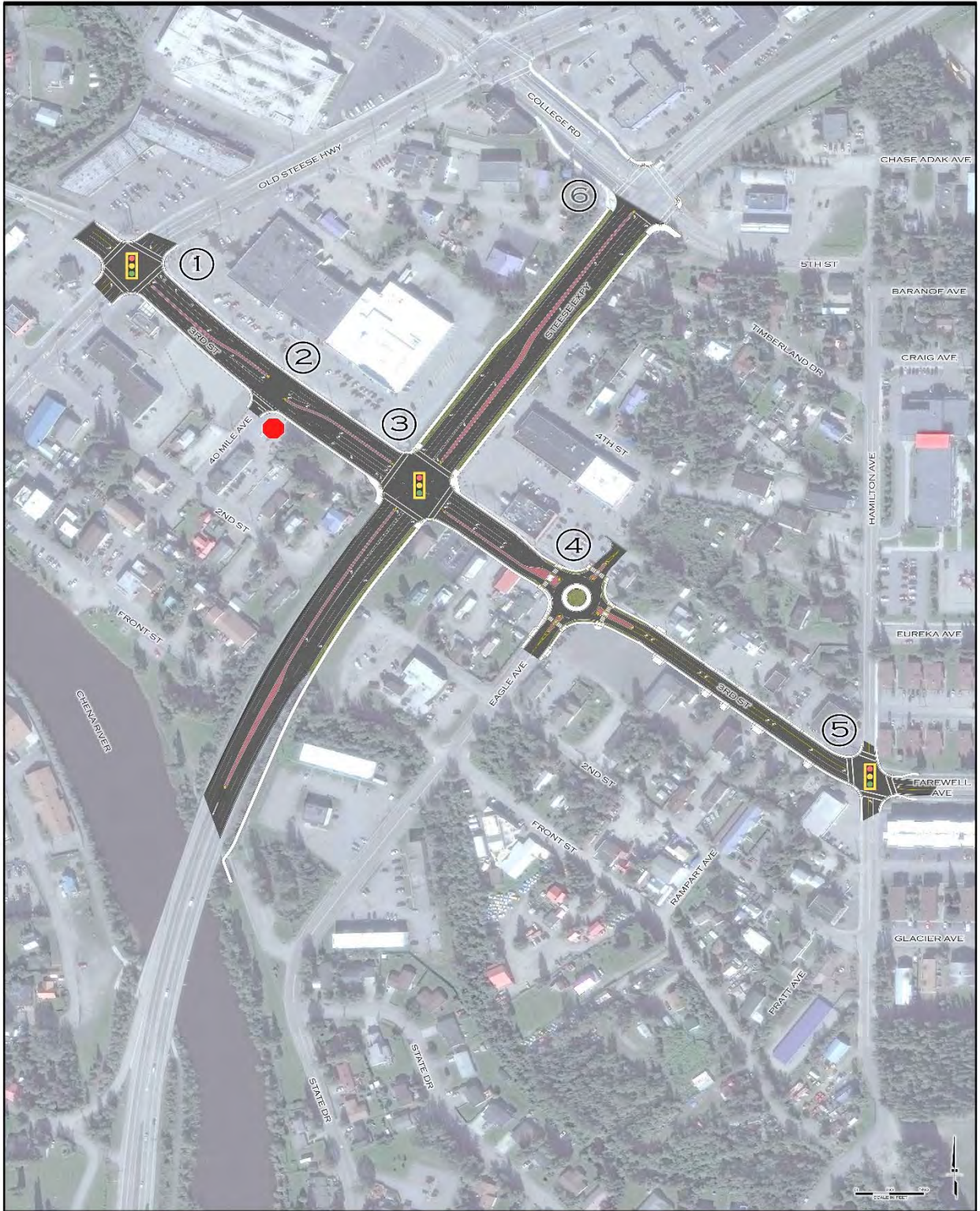
Intersections in the project area are signalized with the exception of the 3rd Street / Forty Mile Avenue and 3rd Street / Eagle Avenue intersections, which are two-way stop controlled.

Proposed Improvements

The proposed improvements as shown in Figure 2 and 3, and listed below, will meet the project purpose and need by decreasing delay and queue lengths and enhancing motorized and non-motorized traffic safety:

3rd Street

- Construct a raised median along 3rd Street between Old Steese Highway and Eagle Avenue.
- Construct a second westbound through lane on the east-leg of Steese Expressway/3rd Street that transitions to a westbound right-turn only lane at Old Steese Highway/3rd Street.
- Re-stripe the existing eastbound right-turn lane on the west-leg of Old Steese Highway/Minnie Street-3rd Street intersection to become a shared through/right-turn lane and then transition to a right-turn only lane at Steese Expressway/3rd Street.
- Construct a second eastbound/westbound left-turn lanes at Steese Expressway/3rd Street.
- Install a single-lane roundabout at 3rd Street/Eagle Avenue.
- Re-stripe existing roadway section to install a two-way-left-turn-lane (TWLTL) median between Eagle Avenue and Hamilton Avenue.



3RD STREET WIDENING

PROJECT OVERVIEW & ENLARGEMENT KEY MAP

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES - NORTHERN REGION

FAIRBANKS, AK

Figure 2



3RD STREET WIDENING
ENLARGEMENT PLAN VIEWS

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES - NORTHERN REGION
FAIRBANKS, AK

Figure 3

Steese Expressway

- Lengthen existing northbound and southbound left/right turn lanes at Steese Expressway/3rd Street.
- Lengthen existing northbound left/right turn lanes at Steese Expressway/College Road.
- Widen existing separated multi-use pathways along Steese Expressway to 8 feet. The pathway along the west side of Steese Expressway south of 3rd Street was upgraded as part of another project.
- Upgrade pedestrian facilities to meet Americans with Disabilities Act (ADA) standards and guidelines.
- Upgrade Intelligent Transportation Systems (ITS) such as new radar detection system and other signal units for the existing signalized intersection of 3rd Street with Old Steese Highway, Steese Expressway, and Hamilton Avenue-Farewell Avenue. A new signal fiber-optic signal interconnect will also be included on both 3rd Street and the Steese Expressway.

DESIGN STANDARDS

Design standards and guidelines that apply to the 3rd Street Widening Project are contained in the following publications:

Standards:

- A Policy on Geometric Design of Highways and Streets (PGDHS), 6th Edition, American Association of State Highway and Transportation Officials (AASHTO), 2011.
- Americans with Disabilities Standards for Transportation Facilities, United States Department of Transportation, 2006.
- Americans with Disabilities Act Standards for Accessible Design, United States Department of Justice, 2010.
- Alaska Flexible Pavement Design Manual (PDM), DOT&PF, 2004.
- Alaska Highway Drainage Manual (AHDM), State of Alaska, DOT&PF, 2006.
- Alaska Highway Preconstruction Manual (HPCM), State of Alaska, DOT&PF, latest edition.
- The Alaska Traffic Manual (ATM), consisting of the Manual on Uniform Traffic Control Devices (MUTCD), 2009 as amended, U.S. DOT, Federal Highway Administration (FHWA) and the Alaska Traffic Manual Supplement (ATMS), State of Alaska, DOT&PF, 2016.
- Guide for the Development of Bicycle Facilities, 4th Edition, AASHTO, 2012.
- Recommended Practice for Roadway Lighting (RP-8-14), American National Standards Institute / Illuminating Engineering Society, 2014.
- Roadside Design Guide, 4th Edition, AASHTO, 2011.
- Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO, 2004.

See Appendix A for Design Criteria and Design Designations

DESIGN EXCEPTIONS AND DESIGN WAIVERS

There are no design exceptions or waivers.

DESIGN ALTERNATIVES

None

3R ANALYSIS

This is a reconstruction (4R) project, hence 3R analysis guidelines are not applicable.

TRAFFIC ANALYSIS

A traffic operations and capacity analysis was completed for the existing year (2017), mid-design year (2030), and design year (2040).

The proposed improvements are described in the Project Description section of this DSR. As a summary, they will:

- Widen/upgrade 3rd Street by adding additional eastbound and westbound through lanes, raised median islands, and turn lanes.
- Upgrade Steese Expressway by lengthening turn lanes and enhancing signage and pavement marking.
- Install a new single lane roundabout at the intersection of 3rd Street/Eagle Avenue.
- Upgrade ITS and other signal units for the existing signalized intersections of 3rd Street with Old Steese Highway, Steese Expressway, and Hamilton Avenue-Farewell Avenue.
- Upgrade pedestrian facilities to comply with the ADA standards and guidelines.

These proposed improvements will improve traffic operation capacity and motorized and non-motorized safety as described below.

- 3rd Street/Old Steese Highway intersection is predicted to operate at LOS C or better during peak hours in the design year no-build conditions.

The conversion of the existing eastbound right-turn lane on the west-leg to become a shared through/right-turn lane will reduce the p.m. peak hour forecasted intersection average control delay from 27 to 21 seconds per vehicle (sec/veh). The LOS will remain unchanged.

- 3rd Street/40 Mile Avenue intersection is predicted to operate at a critical lane group LOS C during peak hours in the design year no-build conditions.

The addition of east and westbound left-turn lanes will reduce the critical lane group forecasted intersection average control delay from 23 to 14 sec/veh during p.m. peak hour and 16 to 12 sec/veh during a.m. peak hour. The critical lane group LOS will improve to LOS B during both peak hours.

- 3rd Street/Steese Expressway intersection is predicted to operate at LOS D and E in the design year no-build conditions during a.m. and p.m. peak hours, respectively.

The addition of an eastbound right-turn lane, second westbound/eastbound left-turn lane, lengthened southbound and northbound left turns, and a second westbound through lane is anticipated to reduce the forecasted intersection average control delay from 61 to 47 sec/veh during p.m. peak hour. There is no anticipated change during the a.m. peak hour (staying at 43 sec/veh). The intersection is predicted to operate at LOS D during both peak hours with these land configuration changes.

- 3rd Street/Steese Expressway experienced 123 crashes for the years period of 2008 through 2012, resulting in 44 minor injuries, three (3) major injuries, and zero fatalities. Approximately, half of the experienced crashes were attributed to rear-end collisions. The project improves safety for this intersection by improving the capacity and by providing only protected eastbound and westbound dual left turns.
- 3rd Street/Eagle Avenue intersection is predicted to operate at a critical lane group LOS F during p.m. peak hour and LOS C during a.m. peak hour in the design year no-build conditions.

The installation of a single lane roundabout will reduce the critical lane group delay from 118.5 to 6.9 sec/veh during p.m. peak hour and from 18.7 to 4.3 sec/veh during a.m. peak hour. The critical lane group and overall intersection is predicted to operate at LOS A. The eastbound approach 95th percentile queue length is predicted to extend 136 feet upstream from the roundabout during the p.m. peak hour, but is not expected to affect operation of the 3rd Street/Steese Expressway signal. The reduction in intersection delay with associated improvement to operational LOS will also improve safety.

HORIZONTAL/VERTICAL ALIGNMENT

The horizontal alignment and vertical profile of 3rd Street was designed in accordance with the Design Criteria located in Appendix A, while closely matching existing conditions for Steese Expressway. The proposed alignments and profiles aim to minimize ROW and drainage impacts. The Plan and Profile sheets are included in Appendix D.

3rd Street: The horizontal alignment of 3rd Street, between Old Steese Highway and Eagle Avenue includes a shifted toward the south to accommodate the additional eastbound/westbound through lanes. This resulted in the 3rd Street/Steese Expressway intersection shifting approximately 25 feet to the south. East of Eagle Avenue, the alignment follows the existing roadway centerline, with a minor shift east of Hamilton Avenue.

The proposed vertical alignment generally follows the existing roadway profile, with minor modifications to introduce high and low points to facilitate drainage of the roadway. All vertical grades fall within the minimum and maximum grades specified for this project. Grade changes where the algebraic difference is 1 percent or less have no vertical curve.

The horizontal alignment preserves the superelevated segment on the curve near the Hamilton Avenue intersection (Station 32+90 to End of Project).

Steese Expressway: The proposed horizontal alignment of the Steese Expressway closely follows the existing alignment.

Steese Expressway project improvements includes resurfacing, while maintaining existing typical section. Therefore, the design maintains existing roadway profile, with minor modifications to eliminate below minimum grade of 0.3 percent.

The design preserves the two segments of existing superelevation along the Steese Expressway alignment. The first segment begins just south of the Chena River Bridge and ends south of the intersection with 3rd Street (Station 21+00). The second segment starts just south of the intersection with College Road (Station 28+20) and carries through to the End of Project).

TYPICAL SECTIONS

The proposed typical section for 3rd Street from Old Steese Highway to Eagle Avenue (see Figure 3) consists of:

- two 11-foot paved through lanes in each direction;
- back-to-back 12-foot left-turn lanes, one lane in each direction of travel;
- 5.5-foot shoulders (4-foot paved shoulder and 1.5-foot gutter pan);
- standard roadside curb and gutter;
- 6-foot concrete sidewalks adjacent to the back-of-curb; and
- a raised median island separating east and westbound traffic, with a break at 40 Mile Avenue to allow for left turning movements.

The proposed typical section for 3rd Street from Eagle Avenue to Hamilton Avenue (see Figure 3) consists of the same features but will have only one 11-foot lane in each direction, no median, and a 12-foot paved TWLTL.

The proposed typical section for the Steese Expressway (see Figure 4) consists of:

- two 12-foot paved through lanes in each direction;
- a raised median of varying width;
- 7.5-foot shoulders (6-foot paved shoulder and 1.5-foot gutter pan);
- standard and expressway roadside curb and gutter;
- 8-foot asphalt separated multi-use path;
- 8-foot utility strip buffer between the back-of-curb and the multi-use path; and
- an access control fence between the multi-use path and edge of near traveled lane.

The Steese Expressway segment leading to the Chena River bridge features curb and gutter, with guardrail situated about 9 inches behind the curb face. Guardrail is necessary at this location to protect against vehicle encroachments onto non-recoverable/non-traversable slopes steeper than 3H:1V. This project will reconstruct the guardrail and adjust the rail face offset so it is flush with the curb face in accordance with current standards.

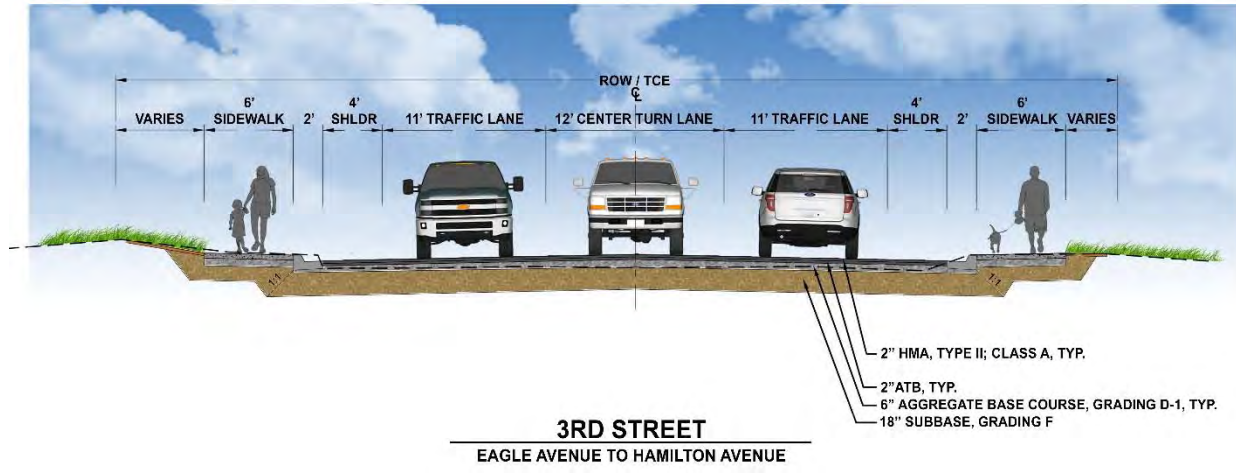
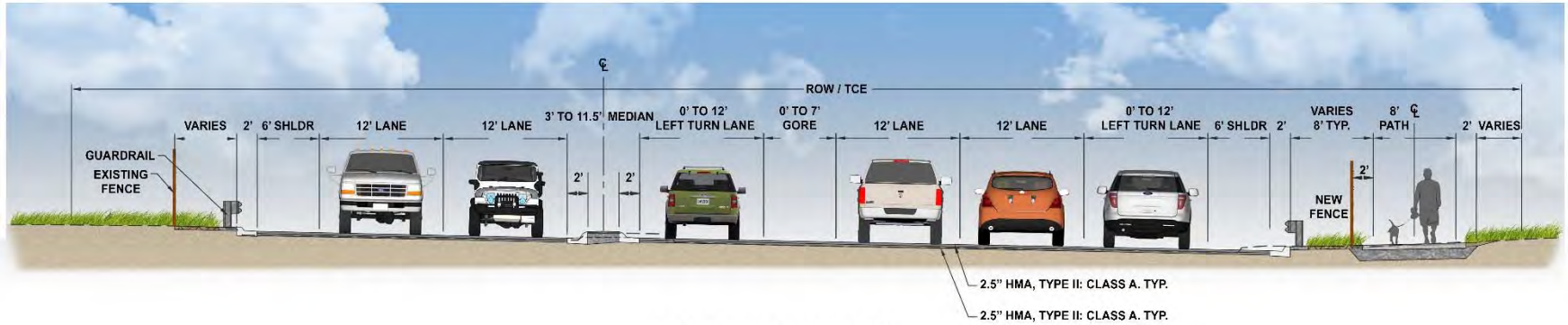
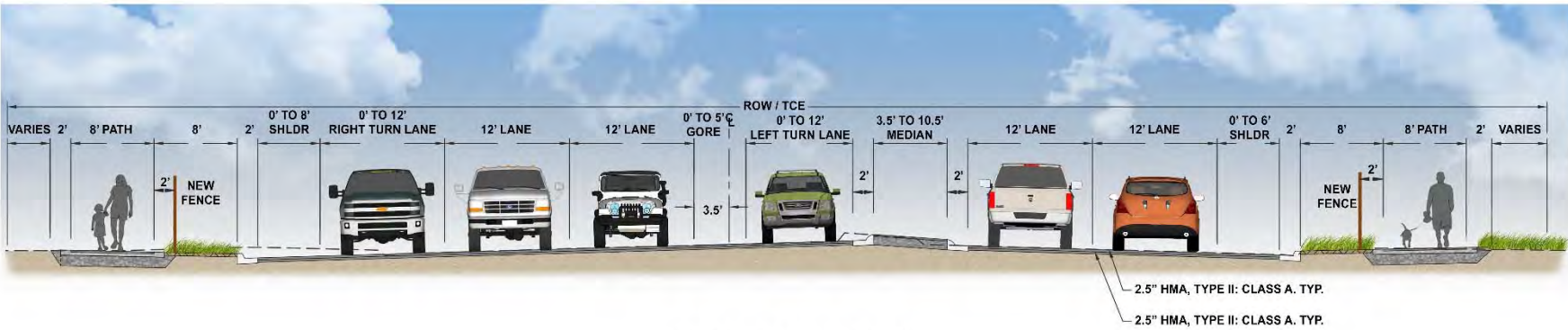


Figure 4



STEESE EXPRESSWAY
STA BOP TO STA "SE" 21+20



STEESE EXPRESSWAY
STA "SE" 22+80 TO 30+79

Figure 5

PAVEMENT DESIGN

The proposed pavement sections follow the guidelines in the Alaska Flexible Pavement Design Manual. They have been developed in coordination with and approved by the Regional Materials Engineer:

3rd Street:

- 2-inches hot mix asphalt
- 2-inches asphalt treated base
- 6-inches aggregate base course, grading D-1
- 18-inches of subbase, grading F

Steese Expressway: As-builts imply the existing road embankment consists of Selected Material, Type A overlain with Basecourse, Grading D-1 and this was used in the pavement analysis. The proposed structural pavement for the Steese Expressway is:

- 5-inches hot mix asphalt

See Appendix C for the approved pavement designs.

PRELIMINARY BRIDGE LAYOUT

N/A

RIGHT-OF-WAY REQUIREMENTS

Right-of-way (ROW) acquisition for this project is needed to widen the roadway footprint and relocate utilities. An analysis of alignment options was completed. The preferred concept widens 3rd Street to the south resulting in ROW acquisitions focused mostly on the south side of the roadway. Project ROW needs anticipate seven full acquisitions, 27 partial acquisitions, 59 temporary construction easements (TCEs), and 17 temporary construction permits (TCPs). Impacts to properties range from minor landscaping loss, loss of parking, to full building structure removal and business relocation(s).

The zoning for all parcels in the project corridor is GU-1 and is therefore not subject to borough parking requirements. Several business properties will have parking reductions due to partial ROW acquisitions. Alternative parking layouts are being developed for negotiations with the property owners during ROW acquisitions.

A summary of anticipated ROW acquisitions is provided in Table 1:

Table 1: ROW Acquisitions

Name of Business	Interest Required
Holiday Alaska Inc. (Holiday Gas Station)	Partial acquisition
Wendy's Restaurant	Full acquisition
Six businesses at 229 3rd Street, Suites 1-6	Full acquisition
Novus Windshield Repair	Full acquisition
Sign Detail Shop	Full acquisition
Award Makers	Full acquisition
House of Tabs	Full acquisition
Real Estate Offices	Full acquisition
Helmbrecht Dental Clinic/Dental Offices	Partial acquisition
Independent Carpenters Garage	Partial acquisition, structure would be demolished
Trademark Screenprinters (2 lots)	Partial acquisition, structure would be demolished, business relocated
Chowder House (2 lots)	Partial acquisition
Jubilee Worship Center (6 lots)	Partial acquisition at the 3rd Street/Eagle Avenue intersection and for utilities.
Eagle Plaza Mall	Partial acquisition at the 3rd Street/Eagle Avenue intersection
Alaska Barber Shop	Partial acquisition at the 3rd Street/Eagle Avenue intersection
Residential House at 534 3rd Street (2 lots)	Partial acquisition
Ajimi	Partial acquisition
Northland Mortgage	Partial acquisition
Graehl Business Center	Partial acquisition
Boynton Office Systems	Partial acquisition
Early Head Start (3 lots)	Partial acquisition

See Appendix E for a graphic of anticipated permanent ROW impacts.

MAINTENANCE CONSIDERATIONS

DOT&PF maintains 3rd Street and the Steese Expressway within the ROW of the project corridors. Maintenance challenges include no place for temporary snow storage during snow removal

operations on 3rd Street, aged surfacing, and damaged curbs making delineation between traveled lanes and pedestrians facilities unclear. The project will address these challenges as follows:

- a 4-foot shoulder along both sides of 3rd Street will function as a temporary snow storage area, allowing for quicker opening of travel lanes without blocking sidewalks with snow;
- The new structural section and surfacing will result in fewer crack and pothole repairs; and
- The new curbing will improve drainage to the storm drain system and maintain a better separation between motorized and non-motorized traffic.

The project widens the paved surface with additional through and turn lanes (lengthened turn lanes on Steese Expressway), plus a wider separated multi-use pathway along the east and west side (north of 3rd Street) and east side (south of the 3rd Street) of the Steese Expressway. This will increase the number of lane miles to be maintained approximately as follows:

Table 2: Maintenance Lane Miles

Facility	Existing Lane Miles	New Lane Miles
3rd Street Roadway	1.95	2.56
Steese Expressway Roadway	2.38	2.40
Steese: Separate multi-use Pathway	0.26	0.32

In addition, the raised medians along 3rd Street will increase the maintenance effort, particularly related to snow removal. The additional effort will be partially offset by providing 4-foot shoulders on 3rd Street and 6-foot shoulders on the Steese Expressway for snow storage. DOT&PF will additionally be responsible for energy costs for street lighting.

No additional maintenance agreements are required with other agencies.

MATERIAL SOURCES

All material sources will be Contractor-furnished. Materials of appropriate quality are available in sufficient quantities from private and commercial sources in the project vicinity.

UTILITY RELOCATION & COORDINATION

Numerous utilities run parallel to and/or cross the 3rd Street and Steese Expressway corridor. These utilities include:

- Utility Services of Alaska, sanitary sewer and water;
- Golden Valley Electric Association, electric power;
- General Communications, Inc., cable telecommunications and fiber optic; and
- Alaska Communications Systems, telecommunications and fiber optic;

The existing wastewater and water systems will be partially or fully reconstructed by this project. The above ground power and communication utilities will be relocated to an underground duct bank. The following is a summary of the planned utility relocations:

Table 3: Utility Reconstructs

Utility	Existing Condition	Proposed Condition
Sanitary Sewer	A sanitary sewer main runs the length of the 3rd St corridor, from Old Steese Highway to Steese Expressway, with a branch line coming in from 40 Mile Avenue. A second line runs north/south on Eagle Avenue	The sanitary sewer mains within the project limits will be reconstructed
Water	Water main has two lines on 3rd St between Steese Expressway and Hamilton Avenue.	Reconstruct water main, removing one of the redundant lines
Electric power	All electric power is provided by overhead conductors and runs throughout the 3rd Street corridor	All overhead power between Old Steese Highway and Hamilton Avenue will be relocated with an underground duct bank or backfed
Telecommunications	Telecommunication conductors generally follow the same overhead routing as the electric power	Telecommunication cables between the Old Steese Highway and Hamilton Avenue will be relocated similar to the electric power in a separate duct bank

All utility relocations will be coordinated with the respective utility owners, and the relocation plans will be a part of the construction documents. See Appendix F for utility plan sheets.

ACCESS CONTROL FEATURES

3rd Street is classified as an urban minor arterial, which typically has a lower degree of access to provide efficient and safe mobility through the corridor. Lots with driveway access from a side street are generally having the 3rd Street driveway removed. Following DOT&PF standards, or as otherwise noted, Table 4 indicates which driveways along 3rd Street will be eliminated.

Table 4: Driveway Removal

Location (Station)	Comment
14+60, RT	Parcel has alternate access off Old Steese Highway
15+00, RT	Lot is fully acquired; future driveway location will be added by development
15+90, RT	Lot is fully acquired; future driveway location will be added by development
16+60, LT	Too close to adjacent driveway at 17+60, LT
18+50, RT	Lot is fully acquired; future driveway location will be added by development
19+25, RT	Lot is fully acquired; future driveway location will be added by development
24+30, RT (Double)	Metal shop garage door is too close to roadway for safe access. Trademark Building will be demolished. Lot access will be determined during ROW negotiations.
25+25, RT	Driveway is too close to roundabout. Trademark Building will be demolished. Lot access will be determined during ROW negotiations
25+60, RT	Driveway is too close to roundabout; parking lot non-conforming; lot has access from Eagle Avenue.
25+75, LT	Driveway is blocked by parking lot curb; too close to roundabout; lot has access from Eagle Ave.
27+75, RT	Driveway is too close to roundabout; has alternate access off Eagle Avenue.
29+25, LT	Lot has another driveway at 28+60, LT
33+35, LT	Close to Hamilton Avenue; business has another driveway access at 32+65, LT

Note: RT refers to right side of alignment, LT refers to left side of alignment

The Steese Expressway is an urban principal arterial and is a limited access control facility. There are no proposed permanent access changes along this corridor. Two temporary access control breaks have been permitted by FHWA at 2nd and 4th Streets, east side, for traffic control detours during construction. This project will reconstruct the controlled access fences on either side paralleling the Steese Expressway between the edge of shoulder and separated multi-use pathway.

PEDESTRIAN/BICYCLE (ADA) PROVISIONS

3rd Street: 5-foot concrete sidewalks exist along both sides of the 3rd Street project corridor. Shoulders or bike facilities do not exist between Old Steese Highway and Hamilton Avenue. This forces bicyclist to share the roadway or sidewalk with vehicles or pedestrians, increasing the likelihood of conflicts.

The project will construct 6-foot sidewalks and 5.5-foot shoulders (4-foot paved shoulder plus 1.5 gutter pan) to accommodate bike traffic along 3rd Street from Old Steese Highway to Hamilton Avenue. Curb ramps at intersections will include detectible warning tiles and meet ADA standards and guidelines. The signalized intersections will have an ADA accessible push button and signal-protected phases allowing for safe crossings.

Steese Expressway: The Steese Expressway currently has 5-foot asphalt separated multi-use pathways, outside the controlled use area, on both sides of the expressway. This project will widen the separated multi-use pathway to 8-feet; along the west and east sides (north of 3rd Street) and east side (south of the 3rd Street) of the Steese Expressway (the west side was recently reconstructed). The design will also maintain an 8-foot separation from the traveled way where practicable.

SAFETY IMPROVEMENTS

The following safety improvements are proposed:

- Additional east and westbound through lanes on 3rd Street, between Old Steese Highway and Steese Expressway will reduce delay, queue lengths, and enhance driver safety.
- Additional westbound through and left turning lanes on 3rd Street between Steese Expressway and Eagle Avenue will alleviate long queue lengths that frequently extend well beyond the 3rd Street/Eagle Avenue intersection.
- Replacement of the two-way stop-control at Eagle Avenue and 3rd Street intersection with a single lane roundabout will reduce delay while slowing vehicle speeds through the intersection and reducing pedestrian exposure.
- Raised median channelization on 3rd Street between Old Steese Highway and Eagle Avenue will eliminate traffic-crossing left turns at driveways.
- Upgrade signal lenses to 12-inch light emitting diode lenses for better visibility.
- Upgrade the protected-permitted left-turn signal head with flashing yellow arrows.
- Pedestrian access and safety will be improved by replacing and updating pedestrian facilities (i.e., sidewalks, curb ramps, and push buttons) to meet ADA standards and guidelines.

INTELLIGENT TRANSPORTATION SYSTEM FEATURES

Intelligent Transportation System (ITS) projects improve transportation safety and efficiency and enhance productivity through the integration of advanced communication technologies into the transportation infrastructure and in vehicles. This project has no new Intelligent Transportation System (ITS) elements. All employed signal technologies are within the existing capabilities of the DOT&PF.

A separate traffic signal interconnect project covering the 3rd Street Widening signalized intersections is being developed. The two projects will be combined into one Final PS&E package prior to advertising for construction bids.

DRAINAGE

Existing topography is generally flat with less than five feet of relief. No wetlands, fish bearing streams, lakes or stream crossings are within the project area. Chena River, Noyes Slough, and Dry Slough are immediately adjacent to the project. The project is protected from the 100-year flood by a levee system. There are three existing storm drain systems in the project corridor:

- The first system collects surface runoff along 3rd Street from Forty Mile Avenue to Old Steese Highway and drains into the existing storm drainage system serving the Old Steese Highway, which outfalls into Noyes Slough.
- The second system collects surface runoff along the Steese Expressway and along 3rd Street between Forty Mile Avenue and Eagle Avenue. This system outfalls directly into the Chena River.
- The third system collects surface runoff along 3rd Street from Eagle Avenue to Hamilton Avenue and connects into the existing storm drainage system serving Hamilton Avenue, which outfalls into Dry Slough.

The proposed drainage improvements include replacing the curb and gutter and expanding the existing storm drainage systems throughout the project. All new piping will be corrugated polyethylene pipe and curb inlets will be relocated to match proposed curbs. The DOT&PF will maintain the new storm drain systems in 3rd Street up to where it connects into the City system. The drainage system located in the Steese Expressway will continue to be maintained by the DOT&PF.

A storm water engineer plan review has been submitted and approved by the State of Alaska Department of Environmental Conservation.

SOIL CONDITIONS

Nine test holes were taken by DOT&PF in July 2000 along the project corridor. Test holes ranged from 10.0 to 24.0 feet in depth. Five split spoon samples and 45 soil samples were taken directly from the auger flight for testing and analysis. The following describe the materials conditions in the project area:

- Along 3rd Street the existing asphalt concrete was found to range between 2 inches and 3 inches in thickness.
- The existing embankment is approximately 2 to 3.5 feet thick. In some test holes, the embankment thickness was difficult to determine due to the similar nature of the underlying foundation soils. The sampled embankment materials demonstrated a range of 9.7 to 14.0% fines passing the No. 200 sieve.
- The foundation soils in the test holes were generally sand and gravel with some localized pockets of organic material and silt.
- Ground water surface was intercepted between 9.5 and 14.0 feet in five of the test holes.

EROSION AND SEDIMENT CONTROL

Project impacts are estimated to disturb roughly 15 acres, not including contractor furnished material sources.

In accordance with the Alaska Pollutant Discharge Elimination System, Alaska General Construction Permit, an Erosion and Sediment Control Plan (ESCP) and a Storm Water Pollution Prevention Plan (SWPPP) will be required. DOT&PF will include an ESCP in the contract plans. The ESCP will describe the 'Best Management Practices' that may be used during construction and will serve as a reference guide for the contractor to develop and submit a SWPPP for DOT&PF approval prior to beginning construction.

ENVIRONMENTAL COMMITMENTS

A complete list of environmental commitments for ROW, noise, hazardous materials, and construction are listed in the Finding of No Significant Impact (FONSI) located in Appendix B.

WORK ZONE TRAFFIC CONTROL

Temporary work zone traffic control will be developed during the design process and included in the Plans in the form of Construction Phasing and Traffic Control Summary drawings. The traffic control drawings will call out requirements related to allowable and/or restricted road closures, permitted access control of the Steese Expressway, temporary surface treatments, detour routes, construction phasing, temporary traffic control devices, temporary ADA routes and access, and all other incidentals related to temporary traffic control during construction.

The traffic control summary will serve as a template and guide for the Contractor to develop and submit a formal Traffic Control Plan for DOT&PF approval.

VALUE ENGINEERING

In accordance with the HPCM, a Value Engineering Analysis has been considered and will not be completed for this project.

COST ESTIMATE

The estimated costs for this project are as follows: