

CHUGACH WAY RECONNAISSANCE STUDY



Chugach Way Area

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**A technical report to present initial concept
alternatives and identify basic constraints
for the redevelopment of Chugach Way.**

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May 2019

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CHUGACH WAY RECONNAISSANCE STUDY

A. Introduction

The Municipality of Anchorage (MOA) is exploring potential alternatives for the redevelopment of the Chugach Way area bounded by Arctic Boulevard on the east, Spenard Road on the west, 36th Avenue on the north and Chugach Way on the south. The area is currently developed with multiple uses including single family homes, mobile home parks, businesses and apartments. Redevelopment of this area could include a number of different new land uses as well as new circulation patterns, streetscape improvements and placemaking opportunities. However, there are also constraints and challenges to new development that must be considered.

CONTENTS

A. Introduction-----	1
B. Purpose of this Study-----	2
C. Existing Conditions-----	3
D. Chugach Alternatives-----	8
E. Traffic Analysis-----	18
F. Chugach Way Improvements---	28
G. Cost Estimates for Chugach Way Improvements----	28
H. Next Steps-----	33



Chugach Way Area

B. Purpose of this Study

The general purpose of the study is to determine feasibility and future alternatives of Chugach Way to accommodate redevelopment of the project area, and to develop initial schematics for Chugach Way and intersection improvements. This study first looks at existing conditions in order to understand development potential and limitations. The study then explores different possibilities for the redevelopment of the Chugach Way area. Three alternatives propose different intensities and mixtures of land use. Different circulation concepts are also explored in each of the alternatives.

The purpose of this study is not to dictate specific outcomes for the Chugach area or private property, but simply to understand the opportunities and challenges for redevelopment. The conceptual development scenarios are intended to compare potential trade-offs involved with different land uses, public realm improvements, development intensities and circulation patterns.

Finally, the findings in the study will be used to inform a future phase of work which will include a community charrette to engage stakeholders and to create a more refined vision for the Chugach Way area and provide more detailed concepts for urban design, transportation, land use and more. This reconnaissance study also draws on the Spenard Corridor Plan (SCP) and the community outreach that has been completed to-date for the SCP.



C. Existing Conditions

This section provides a brief overview of existing conditions in the Chugach Way area. The map on the page 5 indicates this information graphically.

Easements

A number of easements exist throughout the Chugach Way area, which exist for a variety of reasons. Easements impact the northern edge of numerous lots along West 36th Avenue, and along the eastern edge of some lots on Arctic Boulevard. In some cases, these easements are currently needed for utility facilities. A significant easement encircles the “hockey stick” shaped lot along Fish Creek, south of Chugach Way. Easements must be considered, since they can encumber development.

Water, Sewer and Stormwater

The area is served by Municipal water, sewer, and stormwater facilities. As identified in the Spenard Corridor Plan, water and sewer service in the area around Chugach Way may be insufficient for significantly denser development (see page 6). Improvements to these services may need to be considered in the future. Because parts of the Chugach Way area have been identified as a Reinvestment Focus Area (RFA), funds may be available to help with infrastructure improvements.



Utilities

Utility poles run throughout the Chugach Way area, including along Wilshire Avenue, Chugach Way and Arctic Boulevard. These utility lines would likely need to be relocated or buried below ground to accommodate streetscape or road improvements, particularly along Chugach Way where the public right of way is narrow.

Parcel Ownership

One of the reasons Chugach Way has been identified as a place where there is opportunity for redevelopment is the relatively consolidated parcel ownership, as compared to other places along Spenard Road. While many individual landholders exist throughout the study area, there are two notable groupings of property.

Fish Creek

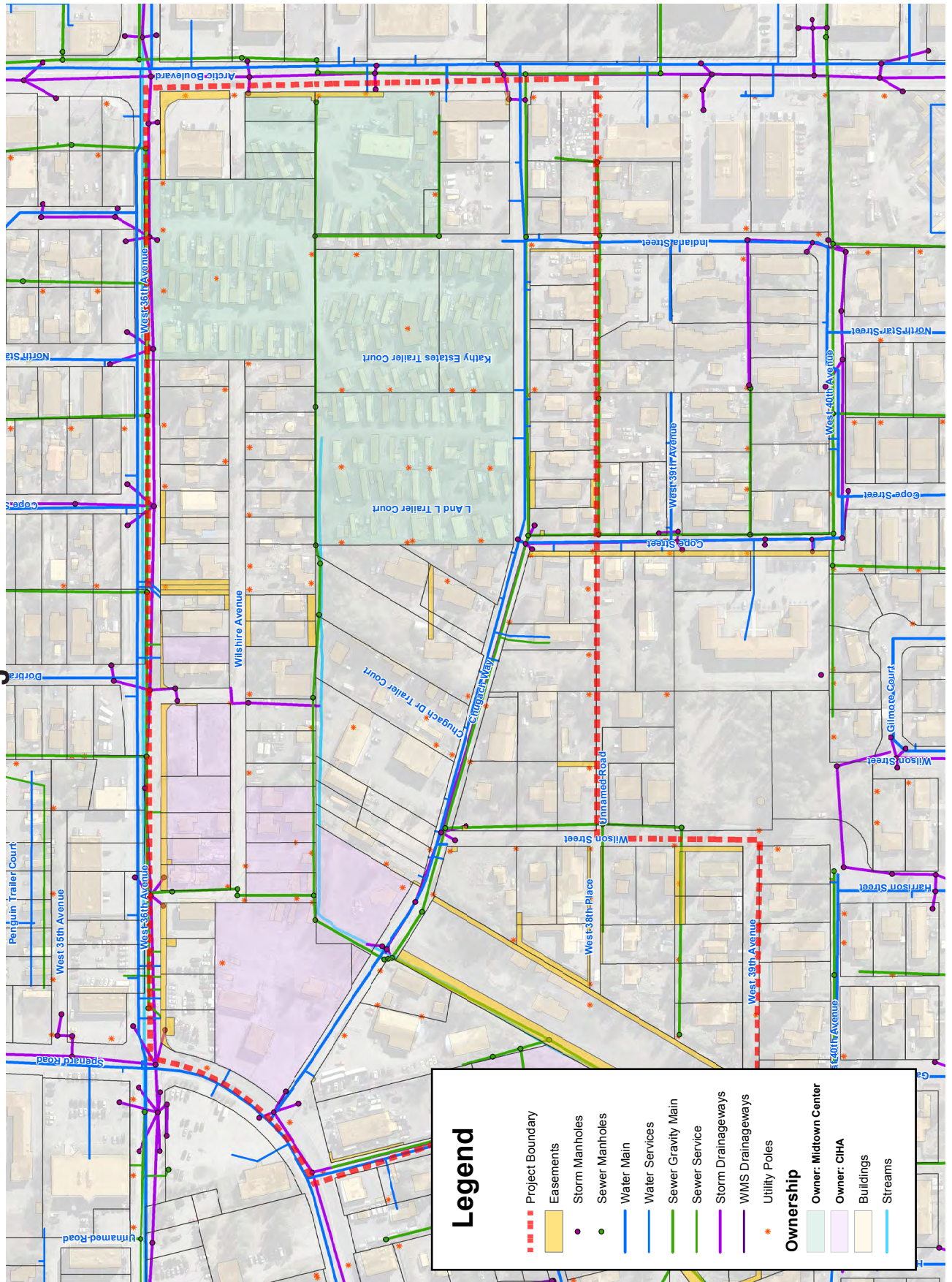
Fish Creek runs through the area. The presence of the creek can present challenges to redevelopment, but it also offers an amenity if it is incorporated as an asset in a landscaping or open space feature.

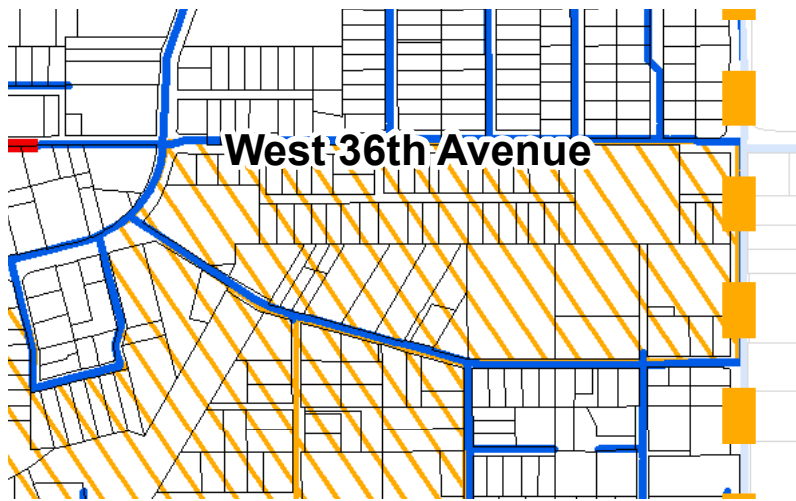
Environmental Constraints

The Chugach Way area contains currently or previously contaminated sites, as described and indicated on the map below. Cleanup has been completed for two of these contaminated sites - the Tesoro-Olson Gas Services Store and the L&L Mobile Home Court. Institutional controls remain in place for these two sites. The institutional controls don't preclude redevelopment, but do require ongoing monitoring of soils/water. The other site - 3901 Hayes Street (in the "hockey stick") is an active contamination site. Remediation of soil and groundwater contamination would be necessary before this property could be redeveloped.

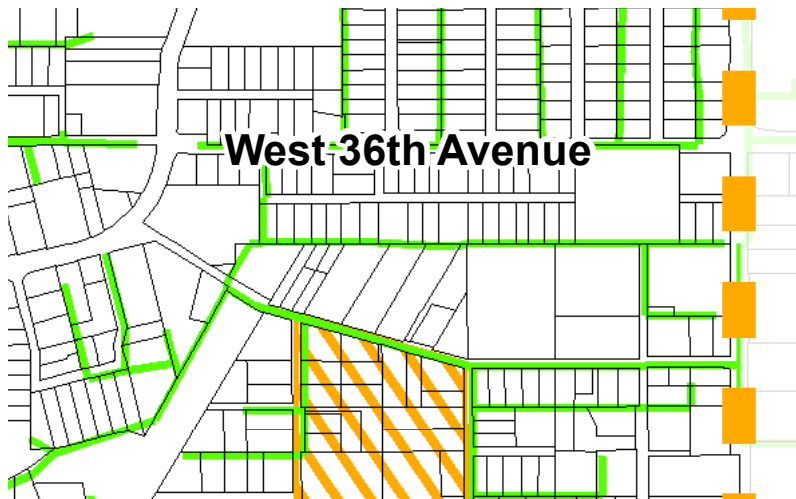
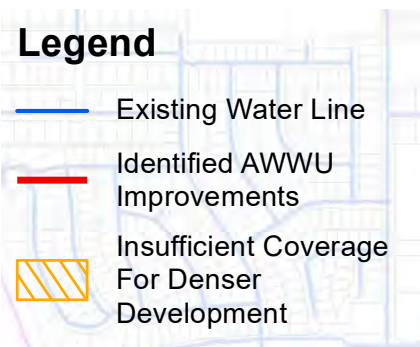


Existing Conditions

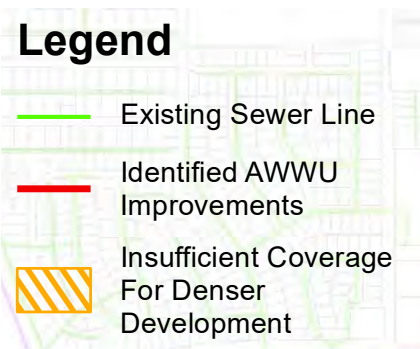




Water service around Chugach Way



Sewer service around Chugach Way



Summary of Constraints

The main constraints to improvements or expansion of Chugach Way are the utility lines. However, this constraint may be overcome by relocating or burying the lines.

One of the major constraints for significant redevelopment within the study area is the water infrastructure that is insufficient for denser development. This means that improvements to the water lines would need to be made prior to significant redevelopment. Options for financing these improvements should be explored. Environmental contamination is a major constraint to redevelopment of the hockey stick area, but generally is not a constraint in the rest of the Chugach Area, where two environmentally contaminated sites have been cleaned up.

The other constraints mentioned above (including easements and Fish Creek) present minor challenges and should be considered in any redevelopment plans.



D. Chugach Alternatives

The Chugach Way area offers a number of possibilities for redevelopment. The alternatives explore different intensities of development, different mixes of land uses, various circulation configurations and multiple types of open space amenities. These alternatives are meant to help understand the constraints and opportunities of the area, and also to compare trade-offs between the three scenarios. They are not meant to presume any particular site design or development design, or dictate how private property is used. The alternatives are conceptual. Elements of all three alternatives may potentially be realized for the area.

Overarching Chugach Way Area Redevelopment Objectives

Land Use

- » Identify transit supportive land uses
- » Contribute to a mix of uses that are mutually beneficial in the Chugach Way area and with the surrounding context

Connectivity

- » Provide a link between Spenard and other areas of Anchorage, including Midtown, Downtown and the airport
- » Enhance pedestrian and bicycle safety and access

Placemaking

- » Create a signature Spenard area with a distinct sense of place

Open Space

- » Create open space that is an amenity for the neighborhood
- » Enhance Fish Creek Corridor

Traffic

- » Reduce cut-through traffic
- » Provide adequate access on Chugach Way to meet demand
- » Facilitate traffic flow and enhance safety

Alternative 1: East-West Mixed-Use Nodes

In Alternative 1, the key focus of development is on the east and west ends of the area, creating mixed-use “nodes” at each side. These clusters of development are also indicative of the concentrations of land owned by major landowners. Moderate and high density residential is added to the nodes, along with horizontal mixed-use development on the west side and live-work on the east side. The “hockey stick” parcel edge develops as well.

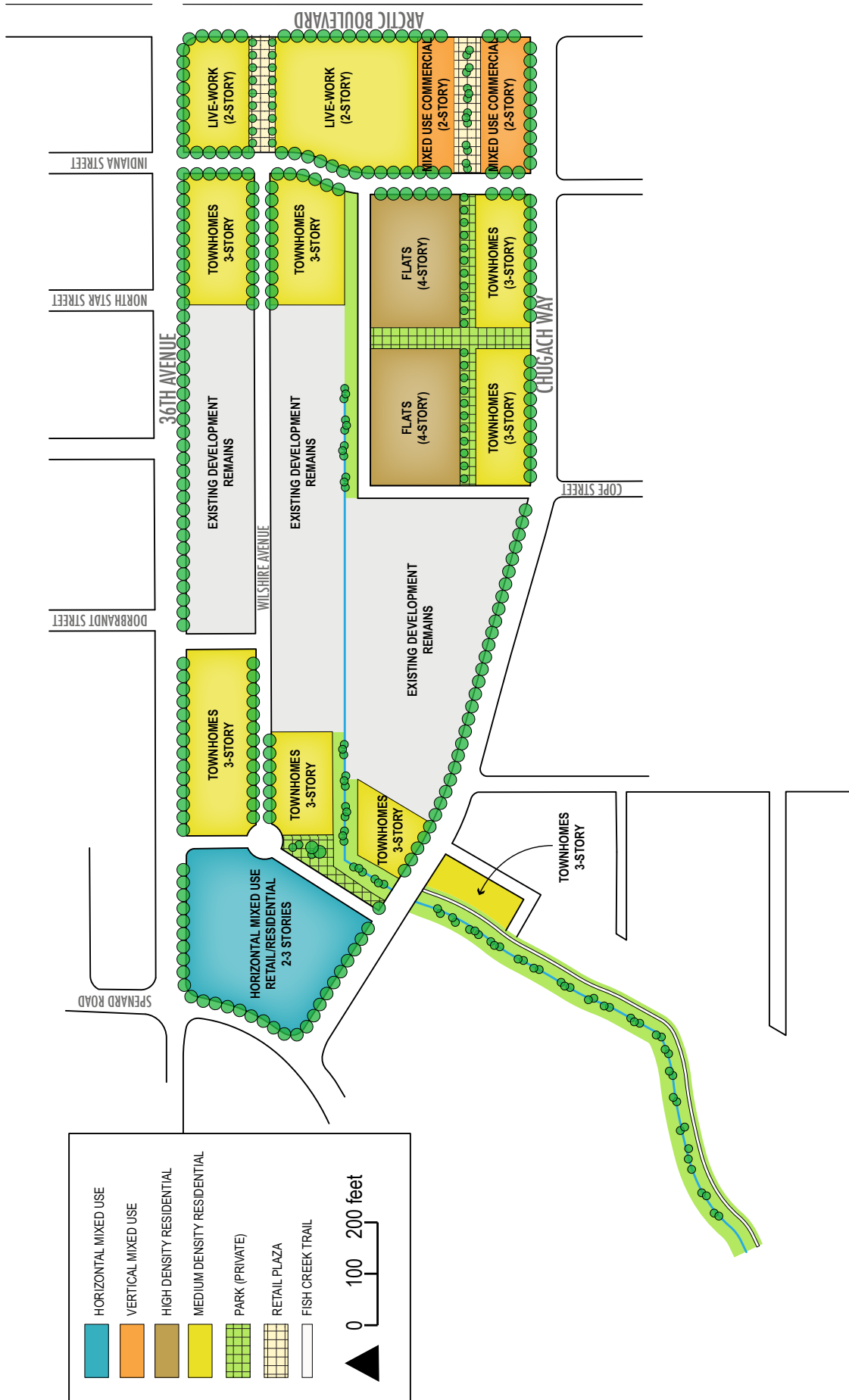
Active transportation occurs throughout the area, and a multi-use path on the north side of Chugach Way is a major feature.

North-south vehicular access is improved within each of the nodes, which also connect with Wilshire Avenue. Wilshire remains the major internal east-west connection throughout the site, with additional connections aligned with Cope Street and Indiana.

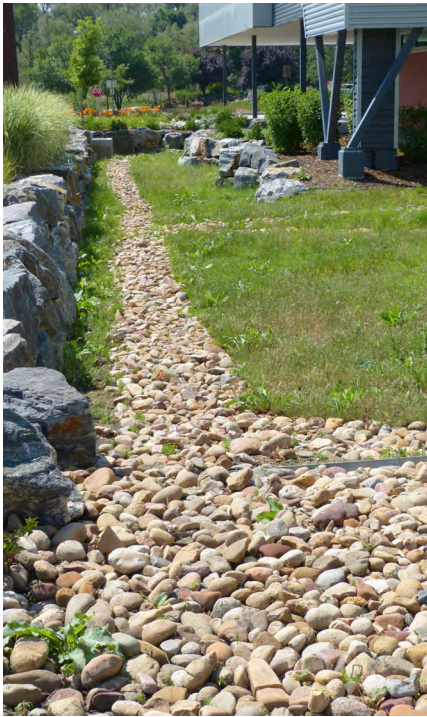
The existing alignment of Fish Creek remains as is. Private open space is provided within the new residential/mixed-use development.



ALTERNATIVE 1: EAST-WEST MIXED USE NODES







Alternative 2: New Neighborhood and Central Greenway

Alternative 2 features development that is more intense than Alternative 1. This alternative assumes that the property owned by major land holders and some additional property along Chugach Way redevelops. Like Alternative 1, this alternative concentrates the higher density development at the edges of the site, with 2-4 story flats at the east and west sides. Moderately scaled townhomes are built along Chugach Way. In Alternative 2, more of the “hockey stick” develops with townhomes.

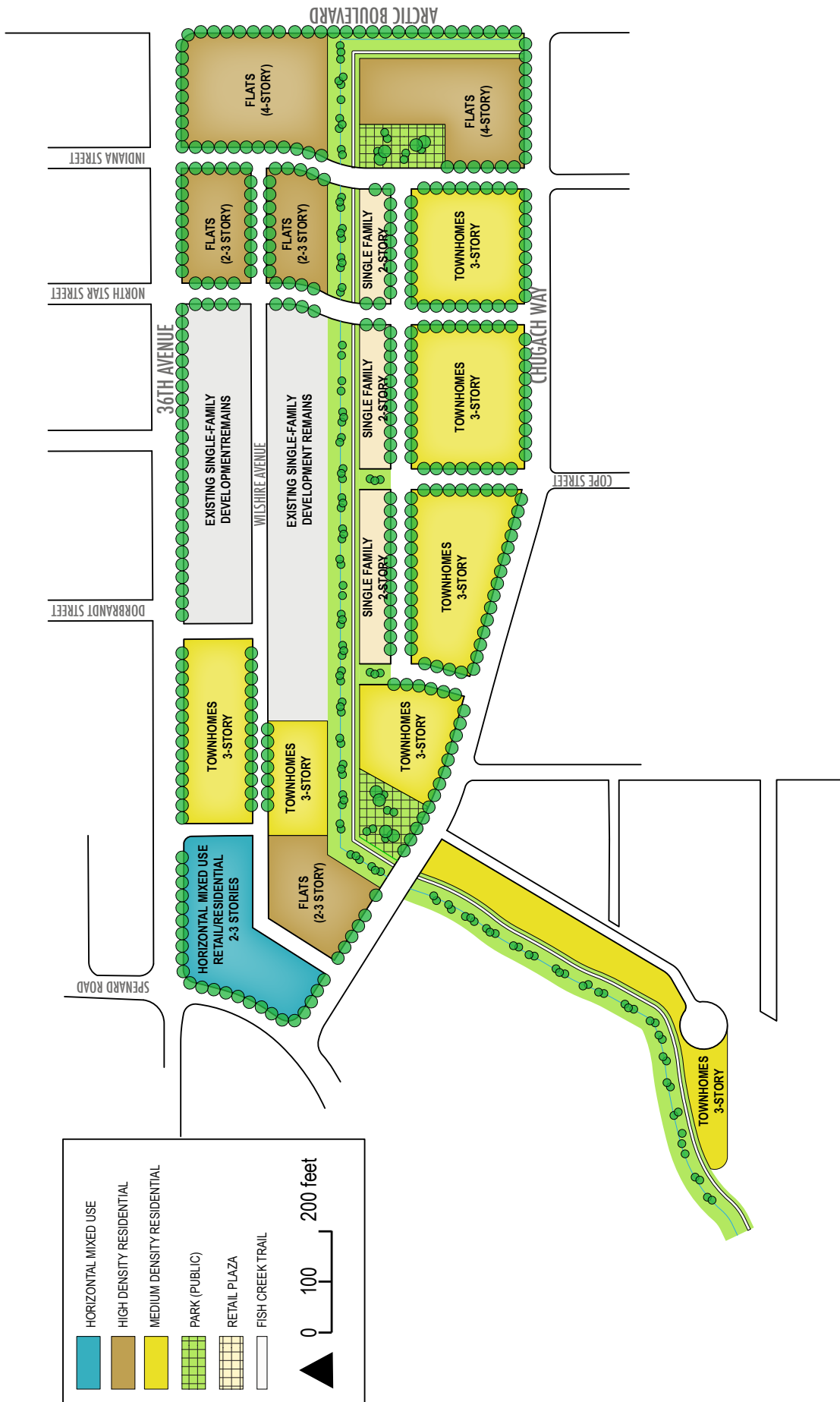
The primary active transportation connection is a multi-use path along an improved Fish Creek that runs through the site.

North-south vehicular access occurs via new connections at North Star Street and Indiana Street. In addition to Wilshire Avenue, another east-west connection helps increase mobility. Two vehicular crossings over the improved Fish Creek occur in the eastern end of the site.

Fish Creek is straightened and improved to become an open space amenity. It accommodates a multi-use path. Other open spaces include small public parks at each end of Fish Creek within the Chugach Way area.



ALTERNATIVE 2: NEW NEIGHBORHOOD AND CENTRAL GREENWAY





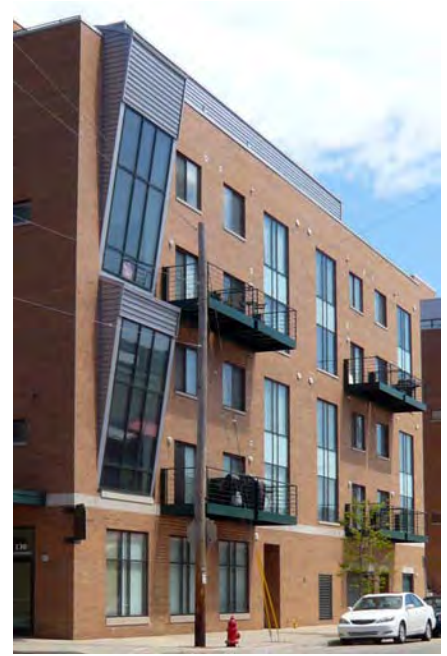
Alternative 3: High Intensity Transit Oriented Development (TOD) and Central Park

This alternative is the most intense of the three alternatives, and it assumes the entire study area redevelops. New residential development is the dominant land use on the interior of the area. Once again, the tallest buildings are found at the east and west sides of the site. Vertical mixed-use and office uses are located along Spenard Road and Arctic Boulevard, respectively.

Active transportation is focused along a Fish Creek greenway that has multi-use paths on both sides of the creek.

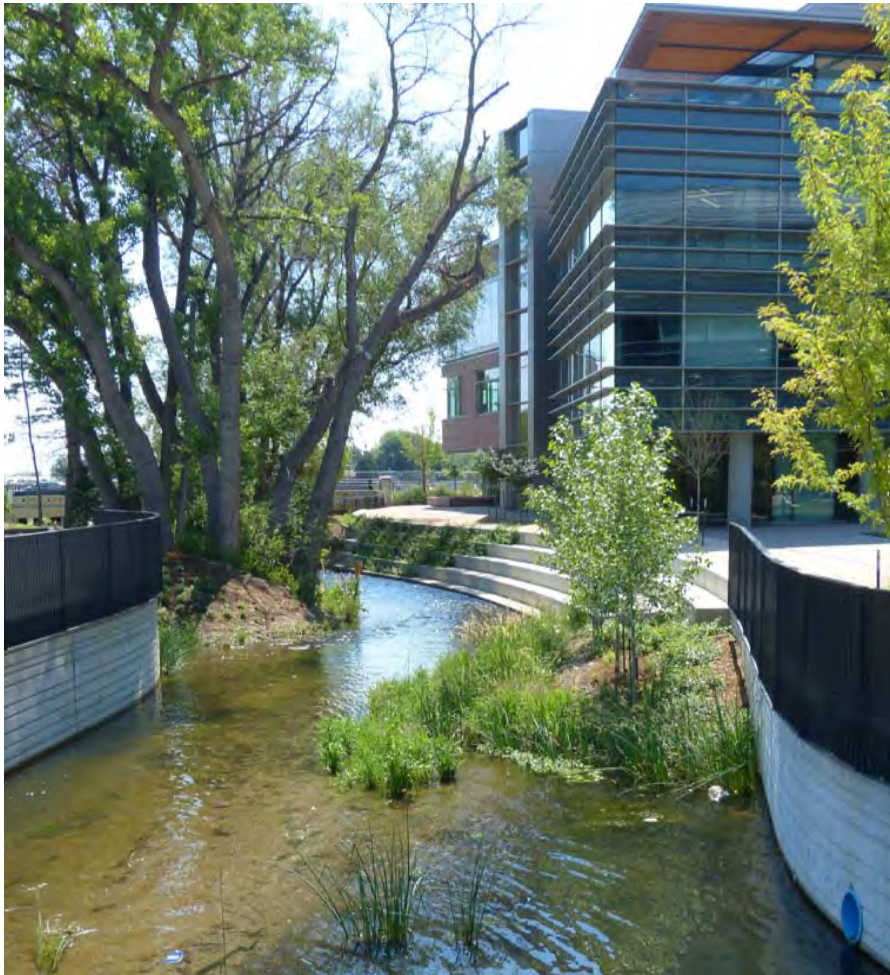
Vehicle access is improved by the through-streets of Cope and Indiana. Wilshire is realigned and an additional east-west street improves connectivity. Other connections are added on 36th Avenue and Chugach Way.

The creek is not only daylighted, it is also naturalized, with landscaping and a more meandering route. Multi-use paths flank the creek, and lead to a large, central park. This public park supports not only the neighborhood, but also the greater area.



ALTERNATIVE 3: HIGH INTENSITY TOD AND CENTRAL PARK





E. Traffic Analysis

This section provides an analysis of the potential traffic impacts of each development alternative.

Alternative 1 and 2 preserve a portion of the existing single family homes and apartments and focus on redevelopment of the trailer park and commercial areas. Alternative 1 and 2 maintain the existing street system and the project area and add additional interior connections to promote interior circulation. Connection to Spenard Road and Arctic Boulevard at Chugach Way and to 36th Avenue at Wilshire Avenue, Dorbrandt Street, and Indiana Street will be maintained. The existing access to Arctic Boulevard at Wilshire Drive and at the trailer park will be removed, but access to Arctic and Spenard at Chugach Way will be maintained. Alternative 3 includes a complete redevelopment of the project area. Chugach Way will remain as the major local east/west street with additional interior connections to it. Side streets in the project area will access 36th Avenue in four locations lined up with Dorbrandt Street, Cope Street, and Indiana Street. For all alternatives, access to the commercial properties and residences are expected to be from the smaller interior streets. Direct driveway access to 36th Avenue, Arctic Boulevard and Spenard Road is not anticipated.

Area Roadway System

Major roads in the project area include Arctic Boulevard, a two-lane divided roadway with a two-way center turn lane, Spenard Road, a four-lane undivided roadway, and 36th Avenue a four-lane roadway with left turn pockets at major intersections. Pedestrian facilities are present on both sides of Arctic Boulevard, Spenard Road, and 36th Avenue. The 2014 Municipality of Anchorage (MOA) Official Streets and Highways Plan (OS&HP) lists Arctic Boulevard, 36th Avenue, and Spenard Road as Minor Arterials. All other streets in the project area, including Chugach Way, are two-way residential streets with no pedestrian facilities.

The intersections of Spenard and 36th and Arctic and 36th are signalized intersections. Chugach Way connects to Arctic Boulevard and Spenard Road as a stop controlled intersection with Chugach Way being the stopped approach. Arctic Boulevard has a left turn pocket at Chugach Way. No turn treatments are present at Spenard Road.

Transit service is provided on both Arctic Boulevard and Spenard Road within the project area.

Site Traffic

Existing Site Traffic

Existing site traffic for roads in the project area was obtained from the Alaska Department of Transportation (ADOT) traffic reports and MOA traffic count data. Base traffic for the project area was estimated using available traffic count data and using the ITE Trip Generation Manual when count data was not available. Pedestrian and bicycle counts were not available for the project area.

Trip Generation

Traffic generation for each of the alternatives at full build-out was calculated using the ITE Trip Generation Manual (9th Edition). The ITE Trip Manual estimates trip generation for single and multiple family residences based on number of units and commercial businesses based on gross square footage. Traffic numbers assume full build-out, and are estimated under the current year. Realistically, build-out would occur over an extended period, based on market conditions.

The PM peak hour will correspond to the critical time when the adjacent street traffic and site generated traffic is at its maximum. While the site will not be fully developed during initial construction, for the purposes of this study, a full build out of the site is assumed. A summary of the trips generated for each Alternative in the AM peak hour and PM peak hour is shown in Table 1 and summarized in detail in the Appendix.

Table 1: Proposed Trip Generation

Alternative	AM Peak Hour			PM Peak Hour		
	Total	Entering	Exiting	Total	Entering	Exiting
1	628	168	460	911	564	347
2	506	137	369	729	458	271
3	959	636	323	1104	420	684

Traffic Characteristics

AASHTO's 2011 Geometric Design of Highways and Streets recommends that the design hour volume (DHV) percentage for a road to be the annual 30th highest hour based on research that suggests that this DHV typically captures the desired number of peak hours for design. The DHV is used to determine future traffic volume projections for Level of Service (LOS) determinations along a given roadway. The closest permanent traffic recorder (PTR) to the project area is at Northern Lights Boulevard and Forest Park Drive. This PTR indicates a 30th highest hour of 10.3%. Calculation of the PM peak hour uses the DHV of 10.3%. An AM peak hour DHV of 5.5% was also taken from the PTR. Directional distribution for the project area was determined using the ITE Trip Generation Manual for the proposed development and existing MOA count data for project area streets.

The peak hour factor (PHF) is the ratio of total hourly volume to the peak flow rate in a 15-minute period within the hour. The PHF is used in capacity analysis on a street or intersection. The closer the PHF is to 1.00 the more uniform traffic flow rate is. A peak hour factor of 0.92 was used for AM and PM volumes.

MOA population and employment records were researched to determine trip assignments in the project area and determine vehicle routes along the corridors.

Multi-Modal Capacity Analysis

A vehicle LOS analysis was performed in accordance with the Transportation Research Board's Highway Capacity Manual, 2010 (HCM). The LOS was calculated using Trafficware Synchro, Version 10. LOS Criteria for study area intersections is shown in Table 2. The Municipality of Anchorage requires critical movements of intersections operate at a LOS of D for the design year.

Table 2: Level of Service Criteria for Intersections

Level of Service	Average Total Delay (Sec/Veh)
A	< 10
B	>10 and < 15
C	>15 and < 25
D	>25 and < 35
E	>35 and < 50
F	>50

Analysis for each alternative assumed a full build-out scenario under the current year. Realistically, redevelopment would occur over a longer period of time. For each alternative, LOS calculations were performed at all project area intersections with Arctic Boulevard, Spenard Road, and 36th Avenue. Results are summarized at the end of this report. Side street intersections with 36th Avenue will operate at an acceptable LOS (D or better) for each alternative following redevelopment. Chugach Way at Arctic Boulevard will operate at a LOS E and Chugach Way at Spenard Road will operate at a LOS F for all alternatives during the PM peak hour.

In addition to vehicle LOS, the HCM provides methods for determining LOS for bicycles (BLOS) and pedestrians (PLOS). Similar to vehicle calculations, the HCM assigns a grade of A through F for a portion of a roadway link. PLOS at an intersection is determined by the number of lanes crossed and the speeds and volumes of vehicular traffic. On a link, the LOS is determined by the amount of pedestrian space and its separation from vehicles. BLOS is calculated similarly to PLOS for intersections, however traffic speed plays a factor in the link BLOS. Under existing conditions, Chugach Way will operate at a BLOS D and a PLOS of E. Adding multi-use pathways and sidewalks to the study area streets will increase the PLOS to Level C.

The HCM does not analyze the use of shared pathways in BLOS and does not incorporate all bicycle users. Developed by the Mineta Transportation Institute, the Bicycle Level of Traffic Stress (LTS) is a best practice approach for assessing the comfort of a bicycle network. The LTS examines the bicycle route for accessibility of all user groups and abilities and is broken into four levels as follows:

- » LTS 1: Cyclists have a strong separation from all except low speed, low volume traffic. Suitable for children.
- » LTS 2: Cyclists have their own place to ride that keeps them from having to interact with other traffic except at formal crossings. Suitable for most adults and ability levels.
- » LTS 3: Cyclists interact with moderate speeds and multilane traffic. Suitable for confident cyclists.
- » LTS4: Cyclists interact with higher speed traffic or in close proximity to high speed traffic. Only suitable for bicyclists that are strong and confident.

Most of the streets within the study area will operate at a LTS1 or LTS2 due to the low volume and low speeds. However, Chugach Way, under existing conditions would have an LTS of 3. Adding a separated multi-use pathways on streets in the study area with over 1500 ADT will increase the LTS to 1 on all streets in the study area.

Additional Considerations

A review of existing crash data was performed for the previous six years (2011-2016) for street intersections in the project area. Since Arctic Boulevard was recently reconstructed, crash data at the Chugach Way intersection is considered no longer relevant. A total of two crashes occurred at Wilshire Street and 36th Avenue, five crashes occurred at Dorbrandt Street and 36th Avenue, and one crash occurred at the trailer park driveway with 36th Avenue. Six crashes occurred at the intersection of Wilson Street and Chugach Way. Of these six crashes, one of these crashes was pedestrian related. Sixteen crashes, including one bicycle crash, occurred in the last six years at the Chugach Way and Spenard Road intersection. This corresponds to a crash rate of 0.55 crashes per millions of entering vehicles which is higher than the statewide average (0.52) for a similar intersection. Twelve of these crashes were associated with left turning traffic from Chugach Way. As traffic increases and the LOS deteriorates from the redevelopment in the project area, this crash rate can be expected to increase.

Adding left turn and right turn lanes on the major streets was considered for Spenard Road, 36th Avenue, and Arctic Boulevard at the project area intersections. The National Highway Cooperative Research Program's (NCHRP) Reports 279 and 457 provide guidance for the addition of turn lanes at stop controlled intersections. Based on proposed traffic from all three alternatives, a left turn lane will be required on Spenard Road at Chugach Way. Right turn lanes are not warranted on 36th Avenue, Spenard Road, or Arctic Boulevard.

Since all project area intersections are less than 0.5 miles from existing signalized intersections, a signalized intersection is not typically considered an option (although, there are many examples in Anchorage where spacing is less than 0.5 miles). Furthermore, a signal on Chugach Way at Spenard or Arctic would interfere with operations at the downstream signals. Additionally, traffic at the side street intersections along 36th Avenue is not high enough to trigger a signal warrant.

Traffic Analysis Summary

A summary of development, street layouts, and AM/PM projected turning movements for each alternative is presented in the figures in the appendix.

Alternative I

Alternative I includes preserving a portion of the existing single and multiple family residences in the project area and redeveloping commercial properties and the trailer park. With the exception of Wilshire Avenue at Arctic Boulevard, Alternative I maintains the existing street system in the project area and adds additional interior connections to promote interior circulation. Connection to Spenard Road and Arctic Boulevard at Chugach Way and to 36th Avenue at Wilshire Avenue, Dorbrandt Street, and Indiana Street will be maintained. With the exception of the intersection of Wilshire Avenue and Arctic Boulevard, all existing access to Arctic Boulevard, Spenard Road, and 36th Avenue will be maintained. A new street connection on 36th Avenue at Indiana Street will be added. Access to the commercial properties and residences are expected to be from the smaller interior streets. Direct driveway access to 36th Avenue, Arctic Boulevard and Spenard Road is not anticipated.

Interior streets in the project area should be constructed as two-lane streets. Chugach Way should remain a two-way through street with unrestricted movement between Arctic Boulevard and Spenard Road. Streets that intersect with Chugach Way, Spenard Road, Arctic Boulevard and 36th Avenue in the project area should be stop controlled intersections with the side streets being the minor approach.

The westbound approach of Chugach Way and Spenard Road will operate at an unacceptable LOS during the PM peak hour following redevelopment of the project area for all user groups. Furthermore, the high crash rate attributed primarily to left turning vehicles will continue to increase. As a result, it is recommended that the westbound left turn movement be prohibited on Chugach Way at Spenard Road. A left turn lane should be constructed on Spenard Road at Chugach Way to facilitate left turning traffic onto Chugach Way. To prevent impacts to existing left turn lanes, the intersections of Wilshire Avenue and Indiana Street on 36th Avenue will have to be constructed as right in/right out only. The existing turn lane on 36th Avenue at Dorbrandt Street should be adequate for future Alternative I development. While the intersection of Dorbrandt and 36th Avenue will operate at an acceptable LOS during the design year (LOS D), it is recommended that a northbound left turn lane be constructed to minimize delay for right turning traffic. Following redevelopment, Chugach Way will operate at a LOS E at the intersection of Arctic Boulevard. To facilitate right turning traffic, a left turn lane should be constructed on Chugach Way.

Pedestrian facilities should be constructed on all interior streets within the project area to promote multimodal transportation, including access to transit facilities, and increase the PLOS and BLOS. Improving the vehicle LOS for each of the major crossings will improve the bicycle and pedestrian crossings as vehicle traffic is able to move through these intersections more efficiently. Furthermore, restricting vehicle traffic movements translates to fewer pedestrian/vehicle conflict points at these crossing locations. Consideration should be given to adding a pedestrian refuge island on the major streets of Arctic Boulevard and Spenard Road at Chugach Way. The pedestrian refuge islands will reduce crossing distances for pedestrians and allow them to cross each direction of traffic one at a time. Further gap studies and pedestrian counts should be conducted prior to installation of any refuge. Additional measures such as signalized intersection control was not considered due to the proximity of the existing signalized intersections on Spenard Road and Arctic Boulevard.

Alternative 2

Alternative 2 preserves the existing single family residences on Wilshire Avenue and redevelops the multi-family, commercial, and trailer park. Access to Spenard Road and Arctic Boulevard will be provided by Chugach Way. Access to 36th Avenue will be provided at Wilshire Street, Dorbrandt Street, North Star Street, and Indiana Street. Direct driveway access to 36th Avenue, Arctic Boulevard and Spenard Road is not anticipated.

For Alternative 2, interior streets in the project area should be constructed as two-lane streets. Chugach Way should remain a two-way through street with unrestricted movement between Arctic Boulevard and Spenard Road. Streets that intersect with Chugach Way, Spenard Road, Arctic Boulevard and 36th Avenue in the project area should be stop controlled intersections with the side streets being the minor approach.

Additional access to 36th Avenue via Cope Street will allow for less delay than Alternative 1. However, the westbound approach of Chugach Way and Spenard Road will still operate at an unacceptable LOS during the PM peak hour following redevelopment of the project area under Alternative 2. Therefore, it is recommended that the westbound left turn movement be prohibited on Chugach Way at Spenard Road to address capacity and safety issues. A left turn lane should be constructed on Spenard Road at Chugach Way to facilitate left turning traffic onto Chugach Way. To prevent impacts to existing left turn lanes, the intersections of Wilshire Avenue and Indiana Street on 36th Avenue will have to be constructed as right in/right out only. With three separate side streets on 36th Avenue between Indiana Street and Wilshire Street, 36th Avenue should be restriped to support a continuous two-way left turn lane. This will eliminate the lane transitions currently present and allow for additional left turn storage. Additional left turn lanes are not required at the 36th Avenue intersections of North Start and Dorbrandt. Following redevelopment, Chugach Way will operate at a LOS E at the intersection of Arctic Boulevard. To facilitate right turning traffic, a left turn lane should be constructed on Chugach Way at Arctic Boulevard.

Alternative 2 will include an east/west trail along the creek. Similar to Alternative 1, additional pedestrian facilities should be constructed on all interior streets within the project area to improve BLOS and PLOS. Additional crossing treatments such as pedestrian refuges at major intersections should also be considered.

Alternative 3

Alternative 3 includes full redevelopment of the project area with apartments, offices, residential and retail facilities. Indiana Street and Cope Street will provide north/south connection between Chugach Way and 36th Avenue. Chugach Way will remain unchanged providing access between Spenard Road and Arctic Boulevard. Additional interior streets will be constructed to provide access to the individual properties. Direct driveway access to 36th Avenue, Arctic Boulevard and Spenard Road is not anticipated.

Similar to the other alternatives, interior streets in the project area should be constructed as two-lane streets. Chugach Way should remain a two-way through street with unrestricted movement between Arctic Boulevard and Spenard Road. Streets that intersect with Chugach Way, Spenard Road, Arctic Boulevard and 36th Avenue in the project area should be stop controlled intersections with the side streets being the minor approach.

Like Alternative 2, Alternative 3 provides additional access to 36th Avenue improving the intersections in the project area. However, Chugach Way will still have safety concerns and operate at an unacceptable LOS thereby requiring left turn lane restriction. Additionally, Chugach Way at Arctic Boulevard will operate at a LOS D under redevelopment, though it is recommended that a left turn lane be constructed to improve overall operations. Similar to Alternative 2, a two-way left turn lane should be constructed on 36th Avenue to improve overall efficiency of left turning traffic. Left turn lanes should be constructed for Cope Street and Dorbrandt Street at 36th Avenue.

Alternative 3 will include an east/west trail along the creek. Similar to Alternative 1, additional pedestrian facilities should be constructed on all interior streets within the project area to improve BLOS and PLOS. Additional crossing treatments such as pedestrian refuges at major intersections should also be considered.

F. Chugach Way Improvements

This study also explores some potential street improvements to Chugach Way itself. These improvements would help enhance the flow of vehicular traffic, provide extra space for snow storage and create new facilities for bicyclists and pedestrians.

Two options for improvements are shown, in section and plan view. Currently, the public right of way for most of Chugach Way is 30'. Both options assume additional public right of way: a more modest increase of 12' for the first option, and 20' for the second option.

Both improvement options would encounter some constraints - particularly due to the narrow right of way that exists along Chugach Way currently. The utility poles that line the southern edge of the street are a constraint to street improvements, although relocation or undergrounding of these utilities could be explored. In terms of winter maintenance, the two options are similar. While the sidewalk on the south side of the street in Option 2 represents an increase in snow removal costs, the value of the extra snow storage space provided by the swale on the north side of the street will help offset this cost.

G. Cost Estimates For Chugach Way Improvements

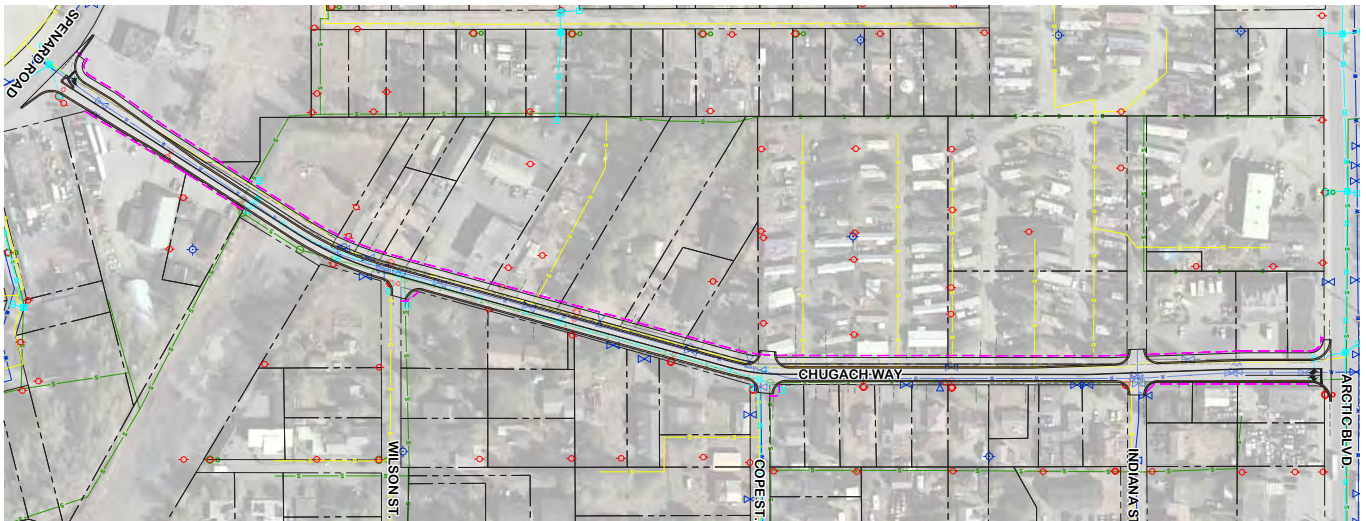
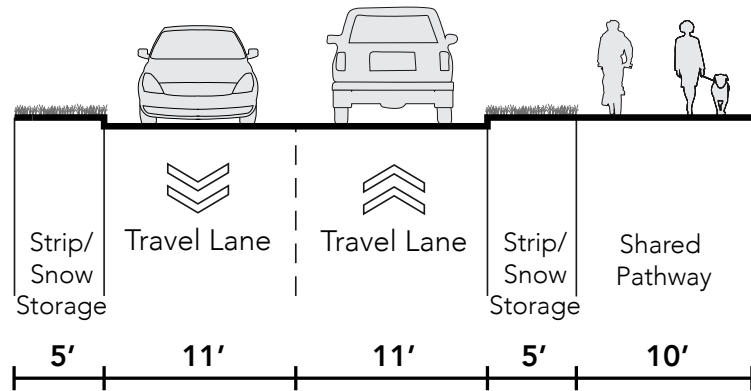
Below are the estimated costs for the two Chugach Way improvement alternatives. Option 2 requires a moderately larger investment due primarily to increased construction and property acquisition costs.

	Option 1	Option 2
Utilities & Drainage		
Adjust Existing Utilities	\$800,000	\$900,000
Water and Sewer Extensions	\$0	\$0
Storm Drain System	\$300,000	\$300,000
Creek Culvert	\$80,000	\$80,000
Illumination	\$250,000	\$250,000
Subtotal Utilities & Drainage	\$1,430,000	\$1,530,000
Roadway Improvements		
Demolition - Existing Roadway	\$90,000	\$90,000
Subgrade	\$550,000	\$600,000
New Roadway Surfacing	\$760,000	\$760,000
New Sidewalk/Pathway Surfacing	\$30,000	\$120,000
Landscaping	\$150,000	\$150,000
Subtotal Roadway Improvements	\$1,580,000	\$1,720,000
Right of Way Acquisition		
*Remove/Relocate Residence	\$0	\$0
Remove/Relocate Business	\$50,000	\$100,000
Property acquisition	\$280,000	\$470,000
ROW acquisition fee	\$60,000	\$110,000
Subtotal Right of Way Acquisition	\$390,000	\$680,000
Construction Subtotal	\$3,400,000	\$3,930,000
Construction Contingency (25%)	\$850,000	\$982,500
Design and Construction Management (20%)	\$680,000	\$790,000
Grand Total:	\$4,930,000	\$5,700,000

*Assumes redevelopment occurs

Option 1

- » 12' added right of way
- » 11' travel lanes
- » 5' strips for landscaping, buffering and snow storage
- » 10' shared pathway for bicyclists and pedestrians on north side of Chugach Way



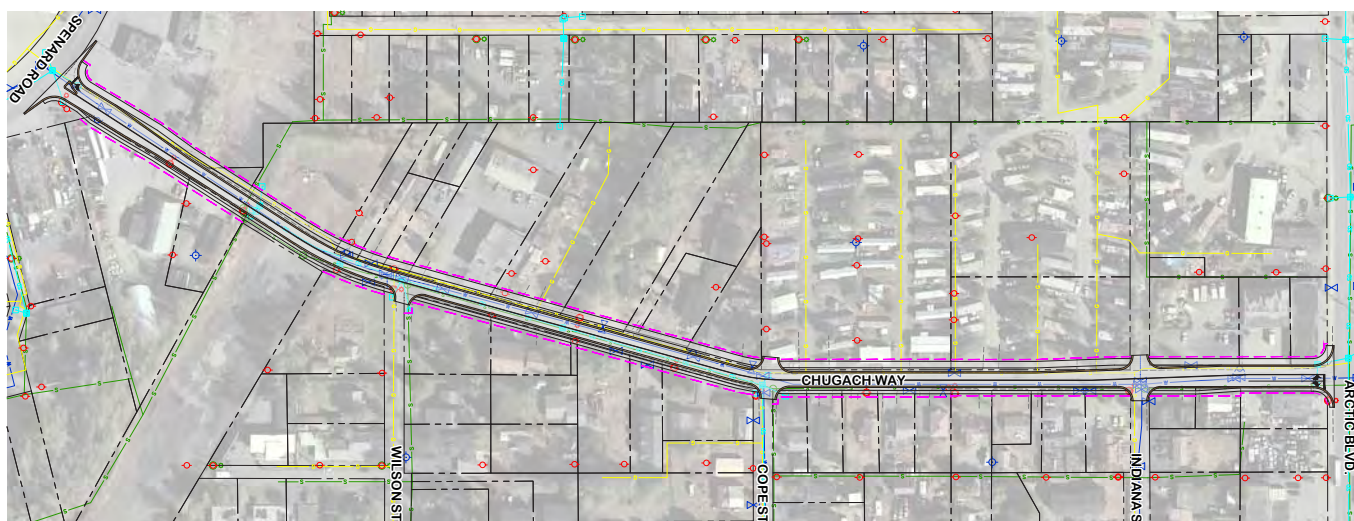
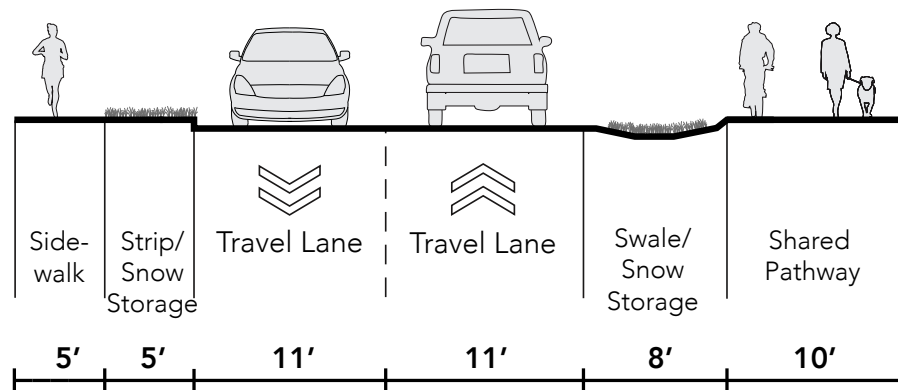


Shared pathways provide a space for bicyclists and pedestrians that is separated from vehicular traffic.

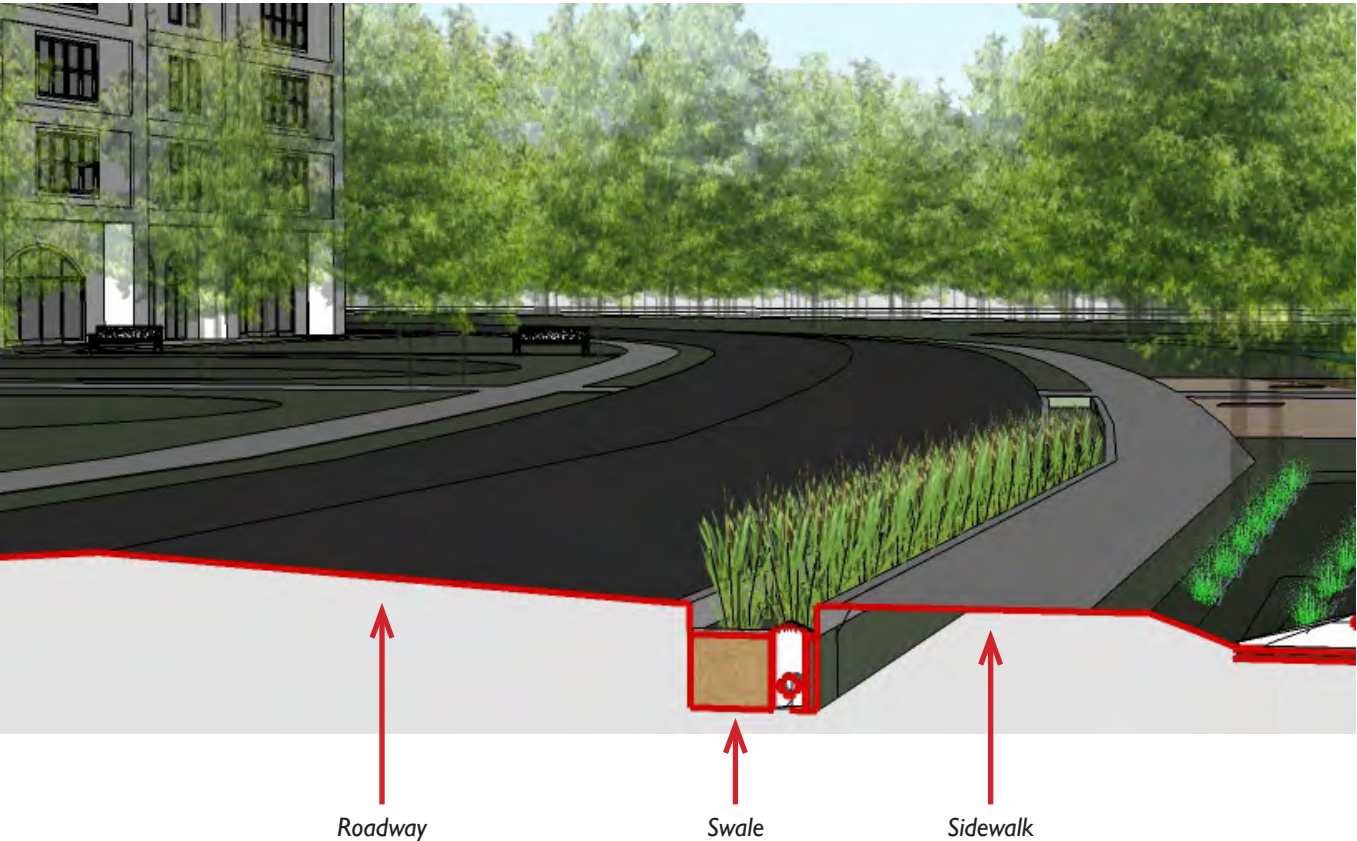
Landscaped strips (covered by snow in the photos above) provide space for trees and plantings while also providing snow storage areas.

Option 2

- » 20' added right of way
- » 11' travel lanes
- » 5' strip for landscaping, buffering and snow storage on the south side of Chugach Way
- » 5' sidewalk on the south side of Chugach Way
- » 8' concrete edge & swale on the north side of Chugach Way for snow storage
- » 10' shared pathway for bicyclists and pedestrians on the north side of Chugach Way



Example Swale System



Swales at the edge of the pavement help to control and filter stormwater runoff, and can also function as snow storage areas in winter months. They can also act as a buffer between pedestrians and vehicular traffic.

H. Next Steps

This study is intended to be an initial investigation into the feasibility of redevelopment of the Chugach Way area and improvements to Chugach Way itself. The scenarios identified represent potential outcomes for the area. A variety of factors are important in determining the future of the Chugach Way area. The findings will be used to inform a future phase of work which will include a community charrette. This will engage stakeholders to help create a more refined vision for the Chugach Way area and provide more detailed concepts for urban design, transportation, land use and more.

Key next steps also include:

1. Coordination with key stakeholders: This includes further communication with property owners within the Chugach Way area, as well as other neighborhood groups. Common goals should be identified for development and connectivity in the area. A community charrette would be an important part of this next step.
2. Exploration of additional resources: A portion of the Chugach Way area has been identified as a Reinvestment Focus Area (RFA), which means funds may be available to help with infrastructure improvements. Still, other sources of funding, including other state and federal grant or loan programs, should be explored as options to help offset the costs of public improvements and attract private investment.
3. Coordination with other agencies: Public improvements such as street reconfiguration, and certain environmental actions will involve other agencies. These agencies should be involved in the future when more concrete plans for redevelopment are considered.

