

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, tradeoffs 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 Tree lawns On-street parking Landscaped medians Bike lanes on designated bicycle routes | Number and width of travel lanes (especially collector and local streets) | Medians On-street parking Street trees Narrower travel lanes 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 Medians Transit accommodations | Pedestrian facilities Bicycle facilities Tree lawns Two-way center left-turn lanes On-street parking | Medians Consolidated driveways Synchronization of traffic signals Narrower travel lanes |
| Industrial | Collector, arterial | Wider travel lanes Attached sidewalks Wider turning radius at intersections | Medians Bicycle lanes On-street parking Number of lanes Tree lawns | Parking restrictions Wider turn radius at intersections and access points Acceleration and deceleration lanes |
| Main Streets | Collector, arterial | Wide sidewalks with transit access and pedestrian plazas Bicycle facilities Curb extensions Tree lawns On-street parking | Medians Width and number of travel lanes (for collector and local streets) | Narrower travel lanes Alternative paving material Tree planters in parking lane On-street parking Reduced pedestrians crossing distances at intersections, using curb extensions, traffic islands, and other measures 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 |

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.

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).

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.

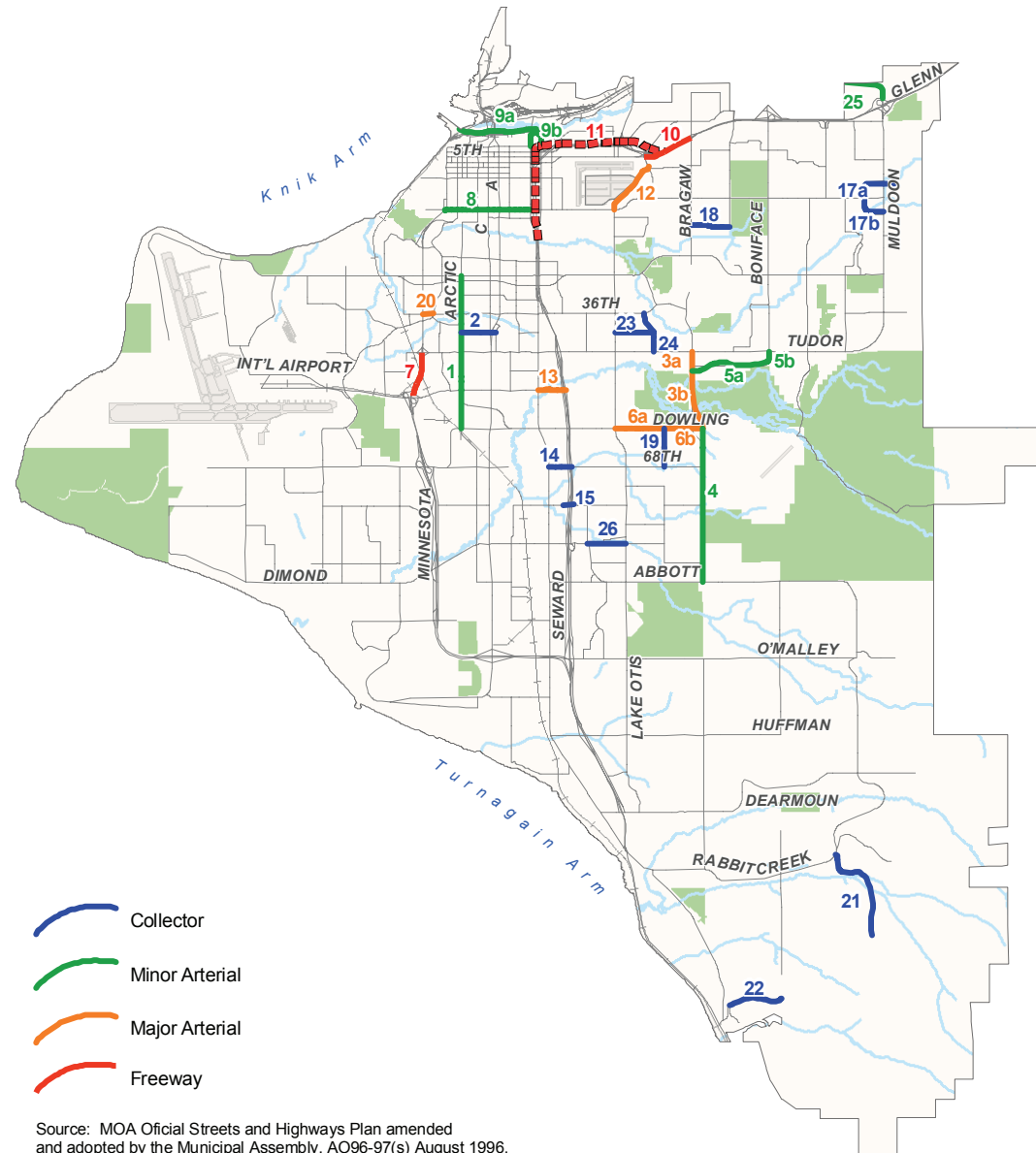
The spacing of collectors varies depending on the following area types: 1/2 mile apart in low-density residential areas, 1/4 mile apart in high-density residential areas, and 1/8-mile apart in commercial and industrial areas and the Central Business District.

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 Official 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 |

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| 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.

