



179TH STREET CIRCULATION AND ACCESS MANAGEMENT PLAN

CLARK COUNTY PLANNING COMMISSION WORK SESSION VERSION
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INTRODUCTION AND BACKGROUND

The NE/NW 179th Street corridor in Clark County serves as a primary east-west facility providing access to I-5, rural neighborhoods, planned urban neighborhoods, and the Clark County Amphitheater and Fairgrounds. 179th Street is classified as a principal arterial from Northwest 11th Avenue to Northeast 72nd Avenue, intended to function to carry large volumes of traffic over long distances. When fully built, this roadway is planned to have two travel lanes in each direction with a center turn lane or median and bicycle and pedestrian facilities. The corridor is facing many challenges. The existing topography creates significant hills and valleys that will need to be adjusted to provide a modern arterial design. The 2,200-acre area surrounding the corridor was recently released from urban holding, which restricted urban density development due to a lack of supporting infrastructure. In the future, this area is expected to experience significant development, creating a large amount of commercial and residential uses that must use 179th Street to access I-5. These challenges necessitate a circulation and access management plan for the 179th Street corridor from NW 11th Avenue to NE 50th Avenue (Figure 1) that promotes safety and mobility of the future principal arterial while balancing the infrastructure needs of development.

FIGURE 1: STUDY CORRIDOR



"Access management" refers to the design, implementation and management of entry and exit points (i.e., driveways, entrances or exits) between roadways and adjacent properties. Entry and exit points can be managed by careful planning regarding their location, the types of turn movements allowed, and if appropriate, medians that provide or prohibit access to driveways. Developing and implementing effective access management strategies that promote or improve safety, requires considering the location of driveways in the context of current and future access needs, current and future intersection operations, and mobility for pedestrians and bicyclists.

The purpose of this study is to provide a cohesive circulation and access management plan for the study corridor to guide future infrastructure improvements including access locations, intersection control and facility cross-section elements. This includes assessing optimal circulation opportunities

with physical and environmental constraints to develop an implementation strategy. This plan also recommended amendments to the Clark County Arterial Atlas.

GOALS AND OUTCOMES

The following is a list of goals and outcomes for the circulation and access management plan, elaborating on the need for a consistent plan and implementation strategy along the corridor.

- Promote mobility along the corridor by limiting direct access to the principal arterial, 179th Street. As stated in the Clark County Code, "Access is generally limited to intersections with other arterials and collectors. Signalized intersection spacing is regulated. Direct land access is minimal and managed."¹
- Allow development of properties along the corridor at an urban scale by providing circulation and connectivity to 179th Street that also follows access management policies.
- When 179th Street is updated to design standards of an arterial it will require significant cuts and fills as the profile of the road is evened out. Ensure any side street access or driveway access will be carefully located and integrated into the design of 179th Street.
- Promote safety and maintain good mobility by including effective intersection plans. This includes roundabouts as the ultimate control type at major intersections and restricted access intersections where needed.
- Promote multi-modal access and safety for all users along the corridor by including circulation strategies for people walking and biking through the corridor as required in Clark County Code².

EXISTING AND PLANNED CONDITIONS

Background information on the existing and planned conditions along the corridor were documented in a previous memo³. This included a safety assessment of historic collision data and a summary of approved and pending developments on the corridor, expected to generate over 2,400 PM peak hour vehicle trips. GIS-based online maps were developed to document existing parcels and accesses, zoning, Arterial Atlas designations, approved development layouts, environmental constraints, and topography. The proposed roadway profile elevation was compared to the existing elevation to identify the differences along the corridor.

Planned conditions include 179th Street improved to provide two travel lanes in each direction, a center turn lane or raised median, bicycle lanes, a detached sidewalk on one side of the street and curb tight sidewalk on the other side of the street within a 100-foot right-of-way (72 feet curb-to-curb). A sample of what this cross-section might look like is shown in Figure 2. The section of NE 179th Street from NE 15th Avenue to NE 50th Avenue will differ slightly to serve the adjacent

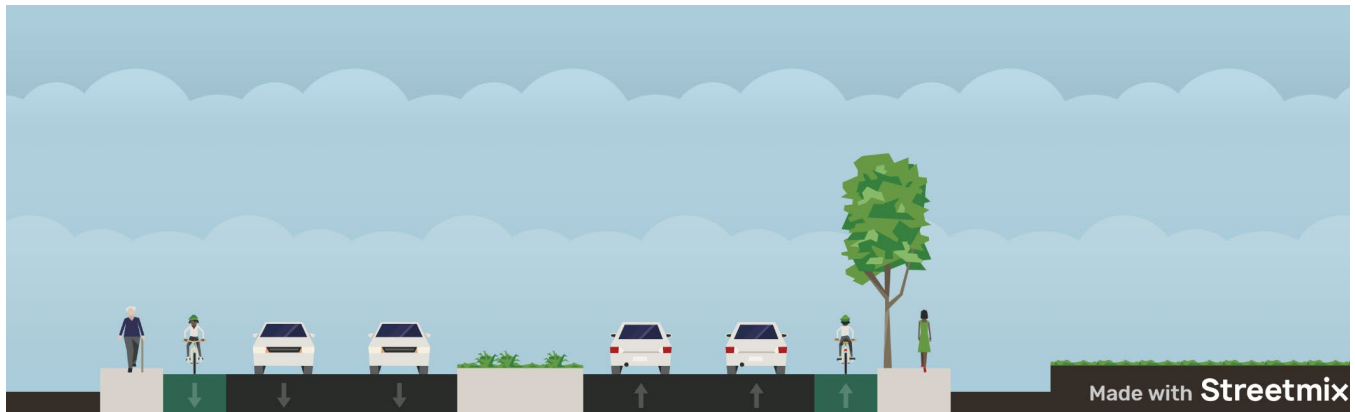
¹ CCC 40.350.030

² CCC 40.350.015

³ Existing and Planned Conditions Memorandum, DKS Associates, October 6, 2021.

residential land. This section will have two travel lanes in both directions, center turn lane or median, and a 10-foot multi-use path on both sides.

FIGURE 2: SAMPLE CROSS-SECTION



BEST PRACTICES

Best practices regarding access management and roundabouts implemented along developing corridors were presented in a separate memo⁴. This task included interviews with staff at the City of Lacey, Washington and the City of Bend, Oregon. It also included research on the access management standards for the City of Spokane, Washington. The key findings from the best practices research informed the development of this plan and are summarized below:

- Each property should have access to a public roadway. These accesses may be consolidated with other properties and should connect to the street with the lowest functional classification. Access to arterials should be made via collectors and local streets where possible. (*City of Spokane*)
- Accesses should be placed outside of intersection influence areas, or they made need to be restricted to right-in, right-out. (*City of Spokane*)
- Medians in combination with roundabouts are effective at control access along a high demand corridor. It is preferred to build a single-lane roundabout and expand additional turn lanes where needed later if the demand is realized. (*City of Bend*)
- Roundabouts can be used effectively to improve safety at intersections and reduce fatal and major injury crashes. (*City of Bend*)
- Roundabouts can make for safer pedestrian crossings, especially near schools. (*City of Lacey*)
- Roundabouts can be used to slow cars down and make for an effective transition from rural to urban areas when designed correctly. (*City of Lacey*)

Figure 3 shows an example of a partial dual-lane roundabout in the City of Bend.

⁴ Best Practices Memorandum, DKS Associates, December 8, 2021.

FIGURE 3: EXAMPLE OF PARTIAL DUAL-LANE ROUNDABOUT IN BEND



SOURCE: GOOGLE MAPS

These findings compliment the current Clark County policies and standards for access management, which include the following:

- The Street Road Standards “shall be consistent with the effective Arterial Atlas. The Arterial Atlas identifies all arterials and collectors and specifies the design of these facilities in general terms.”⁵
- Principal Arterial “is the basic element of the county’s road system. All other functional classifications supplement the principal arterial network. It carries large volumes of traffic over long distances. Access is generally limited to intersections with other arterials and collectors. Signalized intersection spacing is regulated. Direct land access is minimal and managed but is less restrictive than access from parkway arterials. Spacing is typically two (2) to five (5) miles.”⁶
- Per Table 40.350.030-3 in the Clark County Code, the Minimum Full Access Intersection Spacing for a Principal Arterial is 600 feet.
- Standards for development review require considerations for circulation for vehicles, bicyclists, pedestrians, access management, and access spacing.⁷

⁵ CCC 40.350.030 A.3.c.

⁶ CCC 40.350.030 A.5.a.(2)

⁷ CCC 40.350.030 B.2.

STAKEHOLDER INVOLVEMENT

The plan findings and recommendations were developed with the support of two separate groups: a Technical Advisory Committee (TAC) consisting of jurisdiction staff at Washington State Department of Transportation (WSDOT), Clark County planners and engineers, City of Vancouver and a Stakeholder Advisory Committee (SAC) made up of local representatives in the community including neighborhood groups, utility companies, and developers. Each group met three times over the course of the project to provide guidance and input on critical issues and to develop plan recommendations.

The first meeting's purpose was to give the groups background on the corridor plans and conditions. The purpose of the second meeting was to discuss possible alternatives along the corridor and any potential concerns based on what the project team had developed thus far. The third and final meeting went over the recommendations from the alternatives analysis incorporating stakeholder feedback and asked for the committees' recommendation on the preferred alternative.

ALTERNATIVES MAPPING PROCESS

Using the available inventory and planned conditions information, the project team developed a preliminary set of circulation and access alternatives along the corridor during a mapping work session. The project team reviewed these mapped attributes in the online interactive GIS map, developed by OTAK,⁸ to determine future access and roadway connections that would best meet the corridor needs as it develops over time. Moving along the corridor, each parcel was evaluated to make sure it would have an appropriate future access. This included future considerations of land use zoning, vehicle trip potential, planned Arterial Atlas connections and the phasing of interim and/or shared accesses.

Additional considerations were made for planned and approved developments or projects along the corridor at the time of this planning effort as well as event traffic demands from the Clark County Fairgrounds and Amphitheater west of I-5. Alternatives considered included intersection control types, access types and locations (including local street network), and edits to the Arterial Atlas in the form of new or revised roadway connections. The alternatives work session also included discussion of the need for pedestrian connections to the corridor and how roundabouts would be able to handle the need for U-turns as a result of restricted access (right-in/right-out) intersections. The alternatives were refined based on the work session discussion and were used in preparation for the stakeholder involvement meetings. Figure 4 demonstrates this process in a visual format.

⁸ <https://arcg.is/0C8fvu>

FIGURE 4: MAPPING AND EVALUATION PROCESS



EVALUATION PROCESS

Using feedback from the second round of advisory committee meetings, the circulation and access alternatives were reevaluated based on the limitations and benefits of each. Property access phased over time, vehicle and multimodal connectivity needs, and access management were all considered in this evaluation.

Assessment of roundabout impacts was also a part of the evaluation process. Seven high-volume locations along the 179th Street corridor have been previously studied as future roundabouts. Intersection operations and concept details for these intersections are covered in the 179th Street Interchange Study⁹, Intersection Control Evaluations at Delfel Road¹⁰ and 15th Avenue¹¹, and Intersection Improvement Studies at 29th Avenue¹² and 50th Avenue¹³. The design of the future roundabouts at 29th and 50th Avenues are shown at the end of the plan in Figures 13 and 14. The

⁹ 179th Street Corridor Study – Future Conditions Report, DKS Associates, May 14, 2021.

¹⁰ Intersection Control Evaluation at 179th Street and Delfel Road, DKS Associates, February 17, 2021.

¹¹ Intersection Control Evaluation at 179th Street and 15th Avenue, DKS Associates, February 17, 2021.

¹² Traffic Analysis Memorandum – 179th Street and 29th Avenue, DKS Associates, August 9, 2021.

¹³ Traffic Analysis Memorandum – 179th Street and 50th Avenue, DKS Associates, August 9, 2021.

design of these roundabouts will require the exactions of right-of-way according to the figures. Traditional intersections allow for an equal amount of right-of-way to improve the intersection. The installation of roundabouts does not follow this methodology and is determined based on the roundabout design. Additional roundabouts that were recommended as part of this plan are all expected to have lower levels of volume demand and are on equal or lower classified roadways. Thus, they are expected to operate at the same or better conditions of the other planned roundabouts previously analysis. There will be more than sufficient capacity projected for the partial dual-lane roundabouts along 179th Street that will be able to handle any U-turns necessitated by the median or any restricted access intersections.

Pedestrian connections on the corridor were evaluated using methods outlined in the National Cooperative Highway Research Program (NCHRP) Report 562 to identify level of treatment recommended under future conditions. Under the planned future conditions with a five-lane 40 mile per hour corridor, any pedestrian crossings of 179th Street should be built as enhanced crossings. Enhanced treatments may include flashers, beacons, signalization, and raised medians (Figure 5). Traffic volume, vehicle speed, and crossing distance are major factors in this analysis. In this case, enhanced crossings would be warranted regardless of projected pedestrian volume to due to high vehicle speeds and long crossing distance. We coordinated this evaluation with guidance in the Clark County Bicycle and Pedestrian Master Plan¹⁴. The resulting guidance is provided in the Multimodal Access section under Supporting Information.

FIGURE 5: EXAMPLE OF ENHANCED CROSSING



SOURCE: GOOGLE STREETVIEW

¹⁴ Bicycle and Pedestrian Master Plan, Clark County, October 2010.

RECOMMENDED CIRCULATION AND ACCESS MANAGEMENT PLAN

This section summarizes the results of the alternatives and evaluation process and presents the plan recommendations. The proposed changes to the Arterial Atlas and intersection plan

It covers pedestrian access, wildlife corridors, local street connectivity, proposed implementation for development, and the proposed changes to the Arterial Atlas. All these elements are key for implementation of the plan. Any updates to the Arterial Atlas will be adopted as previously stated in the Clark County Code. Other elements may provide supporting information not necessarily adopted into the code.

PROPOSED CHANGES TO THE ARTERIAL ATLAS

The following maps (Figures 6-8) show the recommended changes to the Arterial Atlas for relevant roadways along the study corridor. This includes additions (highlighted in yellow), removals (highlighted in orange), and realignments (highlighted in blue) of collector and arterial roadways. Dashed lines imply future roadways and solid lines represent existing roadways. These recommended edits include adding more circulation to properties as they develop in the future, providing adequate connection to existing higher speed facilities. The proposed roadways are coordinated with ongoing development plans as well. These maps are excerpted below will also be available in Clark County's GIS system. The current link to an interactive online GIS platform is located at this address: <https://arcg.is/0C8fvu>.

INTERSECTION PLAN

In addition to roadways, these maps cover the detailed future intersection plan along the corridor. Roundabout intersections will be used in combination with the median in the five-lane cross section to manage access along the corridor. Thirteen future roundabouts are shown in this plan, including ones that have already been studied, as previously mentioned. These roundabouts will support the remaining restricted access intersections along the corridor by providing opportunities for U-turns where needed. Restricted access intersections come in three main types:

- Shared Access Right-in/Right-out: These intersections provide access to the lesser classified roadways via right turns only. No left turns will be allowed across the centerline of 179th Street.
- Interim Full Access, Future Right-in/Right-out: These intersections will be allowed full turning movement access prior to build out of the local access street network or construction of 179th Street to principal arterial standards. The final future build at this location will be restricted to right-in/right-out only access on 179th Street.
- Interim Full Access, Future Emergency Access Only: These intersections will operate similarly to the above instance, except future build out conditions will close the access to the public and access will only be allowed for emergency responders. This will occur after access to the local, collector, or commercial/industrial streets are constructed.

It is very important to note that there may be variations regarding when interim full access is converted to the future build option in the implementation of this plan. As noted in the map

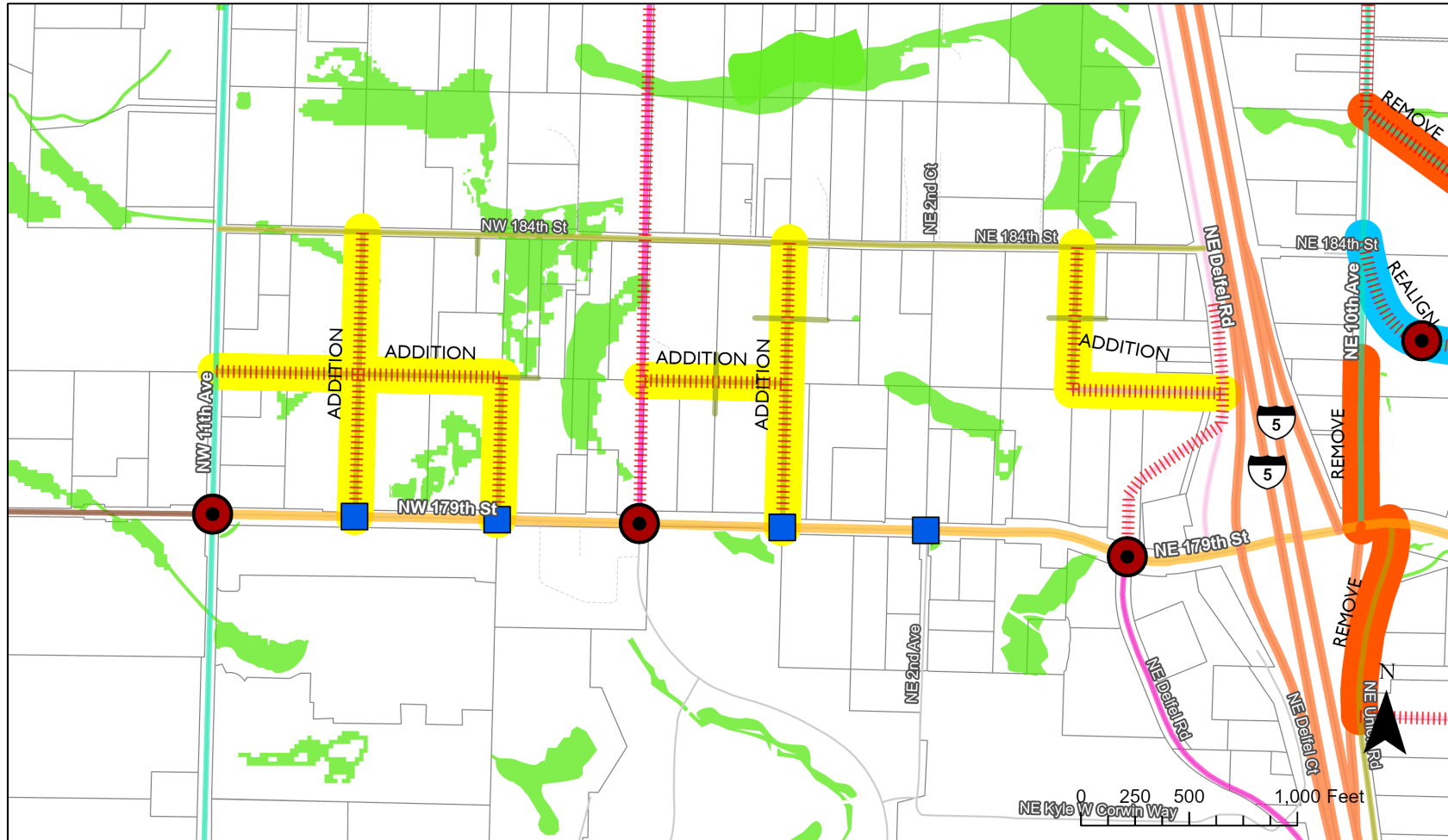
footnote: The interim and future access of specific developments is determined based on the conditions of approval. The effect of the conditions will be coordinated with the engineering/design of 179th Street improvements, construction of an access to alternative circulation routes, the responsible official imposing the conditions, and the property owners.

FIGURE 6: RECOMMENDED PLAN – NW 11TH AVENUE TO NE DELFEL RD



179th Street Access Management and Circulation Plan

Northwest 179th Street: Northwest 11th Avenue to Northeast Delfel Road



Type of Intersection

Type

- Interim Full Access, Future Right In / Right Out
- Roundabout
- Shared Access - Right In / Right Out

Amendment Types

Change

- Addition

Arterial Atlas Classifications

Classifications

- Collector - 2 lanes
- Collector - 2 lanes w/CLT & bike lanes
- Collector - 2 lanes w/CLT & bike lanes
- Commercial Industrial Local
- Non-arterial local access streets
- Minor Arterial - 2 lanes w/CLT & bike lanes

Other Road Types

- Minor Arterial - 4 lanes w/CLT & bike lanes
- Neighborhood Circulator
- Principal Arterial Parkway - 4 lanes & regional trail
- Principal Arterial - 4 lanes w/CLT & bike lanes
- Rural Major Collector - 2 lanes w/shoulders
- Rural Arterial - 2 Lanes
- Rural Minor Collector - 2 lanes w/shoulders
- State Route

*The interim and future access of specific developments is determined based on the conditions of approval. The effect of the conditions will be coordinated with the engineering/design of 179th Street improvements, construction of and access to alternative circulation route(s), the responsible official imposing the conditions, and the property owners.

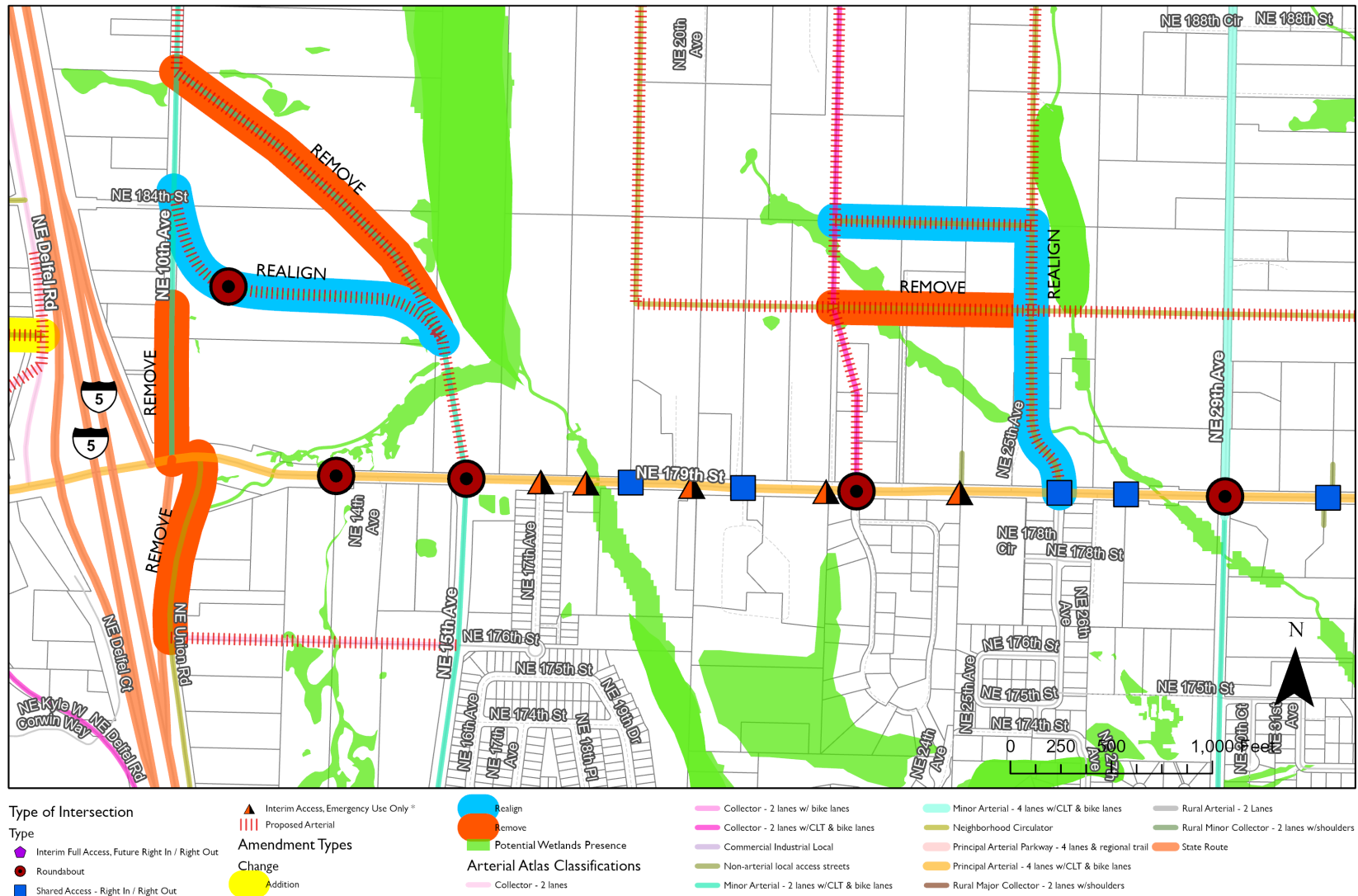
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FIGURE 7: RECOMMENDED PLAN – NE 10TH AVENUE TO NE 29TH AVENUE



179th Street Access Management and Circulation Plan

Northeast 179th Street: Northeast 10th Avenue to Northeast 29th Avenue



*The interim and future access of specific developments is determined based on the conditions of approval. The effect of the conditions will be coordinated with the engineering/design of 179th Street improvements, construction of and access to alternative circulation route(s), the responsible official imposing the conditions, and the property owners.

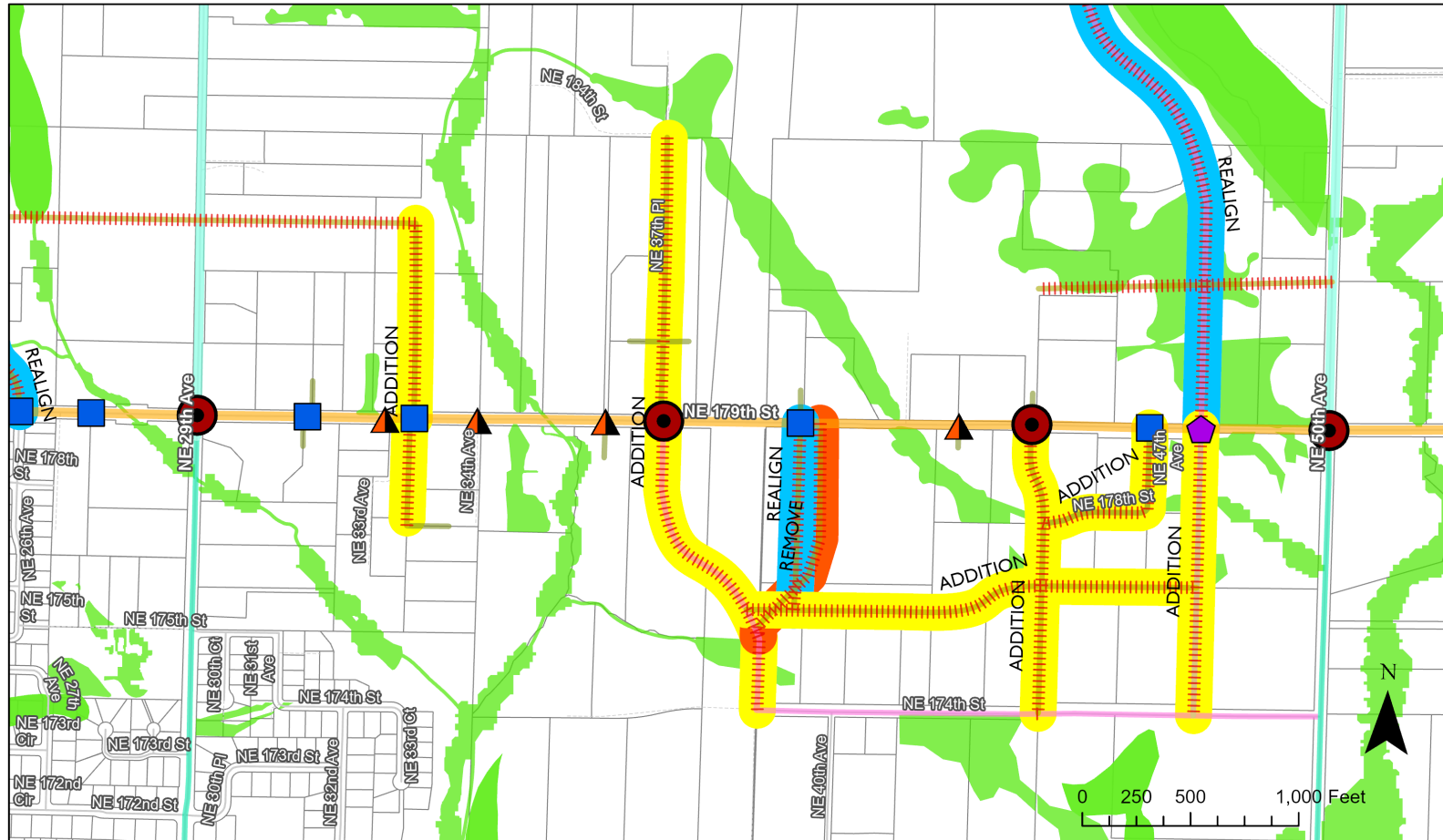
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FIGURE 8: RECOMMENDED PLAN – NE 29TH AVENUE TO NE 50TH AVENUE



179th Street Access Management and Circulation Plan

Northeast 179th Street: Northeast 29th Avenue to Northeast 50th Avenue



* The interim and future access of specific developments is determined based on the conditions of approval. The effect of the conditions will be coordinated with the engineering/design of 179th Street improvements, construction of and access to alternative circulation route(s), the responsible official imposing the conditions, and the property owners.

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SUPPORTING INFORMATION

This section summarizes elements of the planning process not adopted into code but provide guidance on best planning practices that will be implemented alongside development of the 179th Street corridor.

LOCAL CIRCULATION

In addition to the changes to the Arterial Atlas, which address higher classification roadways, this plan also provides a roadmap for local street connectivity. Dashed dark blue lines are shown on the maps in Figures 10-12 to show where local street stubs should be placed to maintain connectivity throughout the developing parcels. Some of these connections are directly on 179th Street to show where properties will get access, and some are off the connecting arterials and collectors to show local street circulation within the larger area. The local street connections would allow shared access by adjacent parcels. Note that these local street stubs are intended to show access points, not the full alignment of roadway segments. This local street connectivity may change over time as properties are developed and the plan is implemented. The intent of showing them on this map indicates what level of connectivity is needed to maintain adequate circulation to all parcels and to coordinate development site plans.

MULTIMODAL ACCESS

The future 179th Street corridor is planned to have sidewalks or a shared use path along the roadway. In addition, pedestrian crossings of the corridor can be made at the planned roundabout locations. Any additional mid-block pedestrian crossings should be enhanced per the NCHRP 562 evaluation. Currently the pedestrian plan shows 11 roundabout crossing locations (not counting the ones at the ends of the corridor) plus one trail crossing for a total of 12 crossings. This gives an average spacing of one pedestrian crossing every 1,320 feet, or a quarter mile, along the corridor. Figures 10-12 are excerpts from the online GIS map, with the pedestrian facility plans shown in light blue (Future Pedestrian Accessway). Note that exact future pedestrian accessways are to be determined through development review approval process following guidance set out in Clark County Code 40.350.015 E. Future planned developments are also shown for reference, as indicators of increased pedestrian demand.

People bicycling along the corridor would be able to use the planned bike lanes or multi-use path along 179th Street. In addition, bicycle circulation would follow the pedestrian accessways into developments per the same section of Clark County Code. Depending on the roadway classification of roadways accessing 179th Street, other bicycle facilities may be provided as well.

WILDLIFE AND TRAIL CORRIDORS

This plan considered the need for key wildlife corridors and where they would cross the 179th Street corridor. For this plan, wildlife corridors include environmental areas where wildlife likely travel plus safe crossing locations for wildlife across busy roadways (Figure 9).

FIGURE 9: EXAMPLE WILDLIFE CROSSINGS

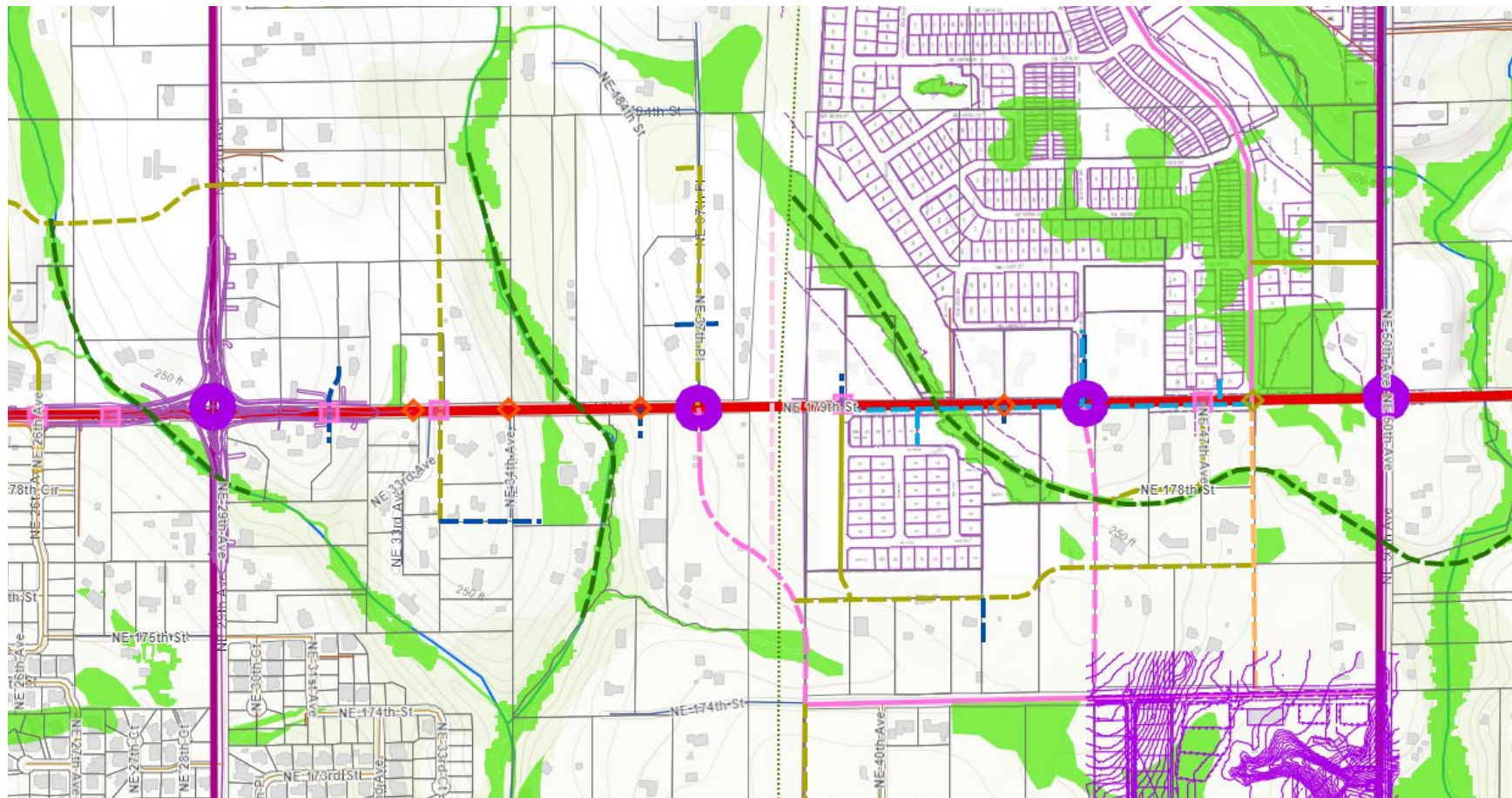


SOURCE: OREGON CONSERVATION STRATEGY AND FEDERAL HIGHWAY ADMINISTRATION (FHWA)





By channeling wildlife crossings to consolidated, signed areas this lets drivers know what to expect when driving. The goal of including these corridors is to increase safety of people driving along the corridor by reducing collisions with local wildlife. These corridors are shown as dark green dashed lines in Figures 10-12 and are guided by the existing wetlands and environmental information.

Future Multi-use Trails are a separate layer on supplemental Figures 10-12 in pale pink. These trails would be developed for people walking or biking and would be developed to allow for multimodal circulation outside of the vehicle roadway system. They would increase connection to the developing land parcels along the corridor.





FIGURE 12: SUPPLEMENTAL PLAN LAYERS – NE 29TH AVENUE TO NE 50TH AVENUE



179th Street Alternatives Intersections

-  Future Roundabout
-  Shared Access Right-in/ right-out
-  Interim Full Access, Future RIRO
-  Interim Access, Future Emergency Only

179th Street Alternatives Roads

-  Future Urban Minor Arterial
-  Future Urban Collector
-  Future Neighborhood Circulator
-  Local Stub

-  Remove from Plan
-  Commercial/Industrial
-  Future Pedestrian Accessway
-  Future Wildlife/Habitat Corridor
-  Future Multi-Use Trail Corridor

FIGURE 13: 179TH STREET AND 29TH AVENUE PROPOSED DEVELOPMENT PLAN



FIGURE 14: 179TH STREET AND 50TH AVENUE PROPOSED DEVELOPMENT PLAN



LEGEND

--- PL --- PL --- PL --- PROPERTY LINE
 --- 100 YEAR FLOODPLANE



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**OCTOBER 2021
 PROPOSED DEVELOPMENT PLAN
 179TH + 50TH ROUNDABOUT**