



711 SE Grand Avenue  
Portland, OR 97214  
(503) 230-9862  
www.altaplanning.com

**To:** Steve Adams, PE and Dennis Egner | City of Milwaukie, Oregon

**From:** Kirk Paulsen, PE and Adrian Esteban, PE | Alta Planning + Design

**Date:** November 7, 2019

**Regarding:** Monroe Street Greenway Alignment Options for the McFarland Property

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## Introduction

The intent of this memorandum is to review two primary route options of the planned Monroe Street Greenway as it traverses around the proposed development known as the McFarland Property. The subject site is situated in Milwaukie, Oregon south of Monroe Street, east of Oak Street, west of 37th Avenue, and north of the railroad corridor.

The planning process for the Monroe Street Greenway has focused on the McFarland Property as a key portion of the route at the western end of the planned greenway. Previously proposed alignments have considered both Monroe Street on the north side of the property as well as a future trail adjacent to the rail corridor on the south side of the property as possible route options.

The McFarland Property is currently proposed for development; therefore, it is critical to review and consider the tradeoffs of various Monroe Street Greenway alignment options at this time.

## Alignment Options

The proposed development of the property includes a trail alignment adjacent to the rail corridor, designed in coordination with the city, as part of the land use approval process. However, recent local stakeholder interests have requested an alternate route following the alignment of adjacent streets be considered.

We reviewed an alternate route that would be located along the outer perimeter of the proposed development along Oak Street (Oak), Monroe Street (Monroe), and 37th Avenue (37th). Alta considered in detail two minor variations of the alternate route along Monroe; these are presented here as two separate options.

In general, greenway routes provide a low-stress facility for biking and walking. Therefore, a greenway route that would traverse the proposed development would need to be substantially more comfortable than typical bike and pedestrian facilities in this area of higher traffic roadways.

#### MONROE PLAN TRAIL ALIGNMENT

The proposed trail alignment would be a 10' wide shared use path (SUP) located within a 15' easement between the rail corridor and the southern boundary of the proposed development, providing a direct connection between Oak and 37th. The trail option would be free of conflicts with motor vehicles and, by this metric, would be considered to be a low-stress segment of the greenway route.

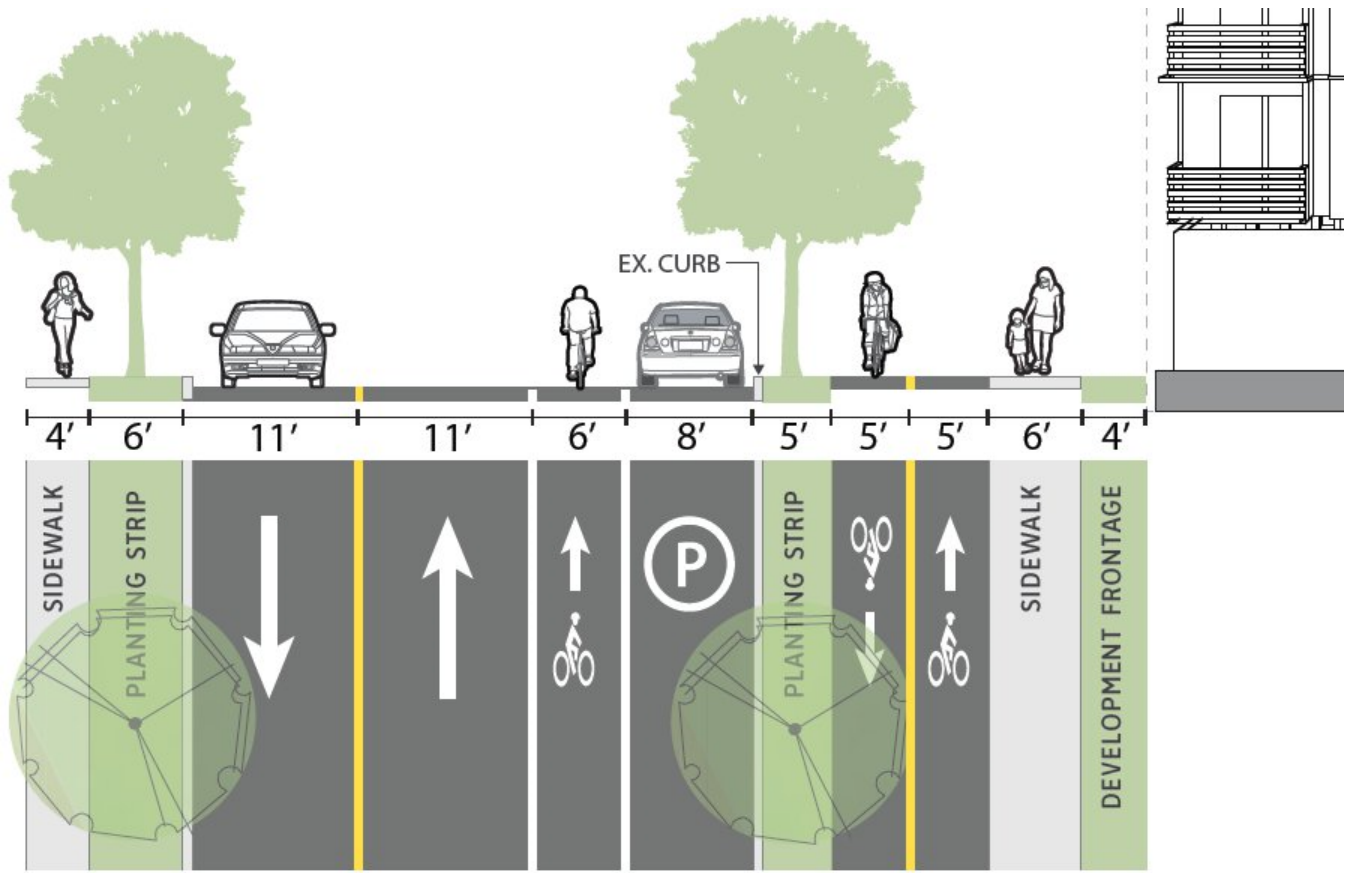
It should be noted that this alignment option has been proposed as part of the development in conjunction with standard painted bike lanes along both Monroe and 37th.

#### STREET ALIGNMENT CONCEPT

The development of the McFarland site presents an opportunity to route a bidirectional bikeway around the property in conjunction with the sidewalk, as there would be fewer conflict points compared to standard painted bike facilities located within the roadway. A bidirectional bike facility would result in few conflict points with motor vehicles, these being focused entirely at the driveways serving the development. Avoidance of such conflicts results in a low-stress segment of the greenway route.

The recommended facility would be 16' wide and consist of two 5' wide bike lanes directly adjacent to a 6' wide sidewalk, all at the same level as the sidewalk. Color and/or texture should be used to visually differentiate between the two types of users, such as asphalt for the bikeway and concrete for the sidewalk.

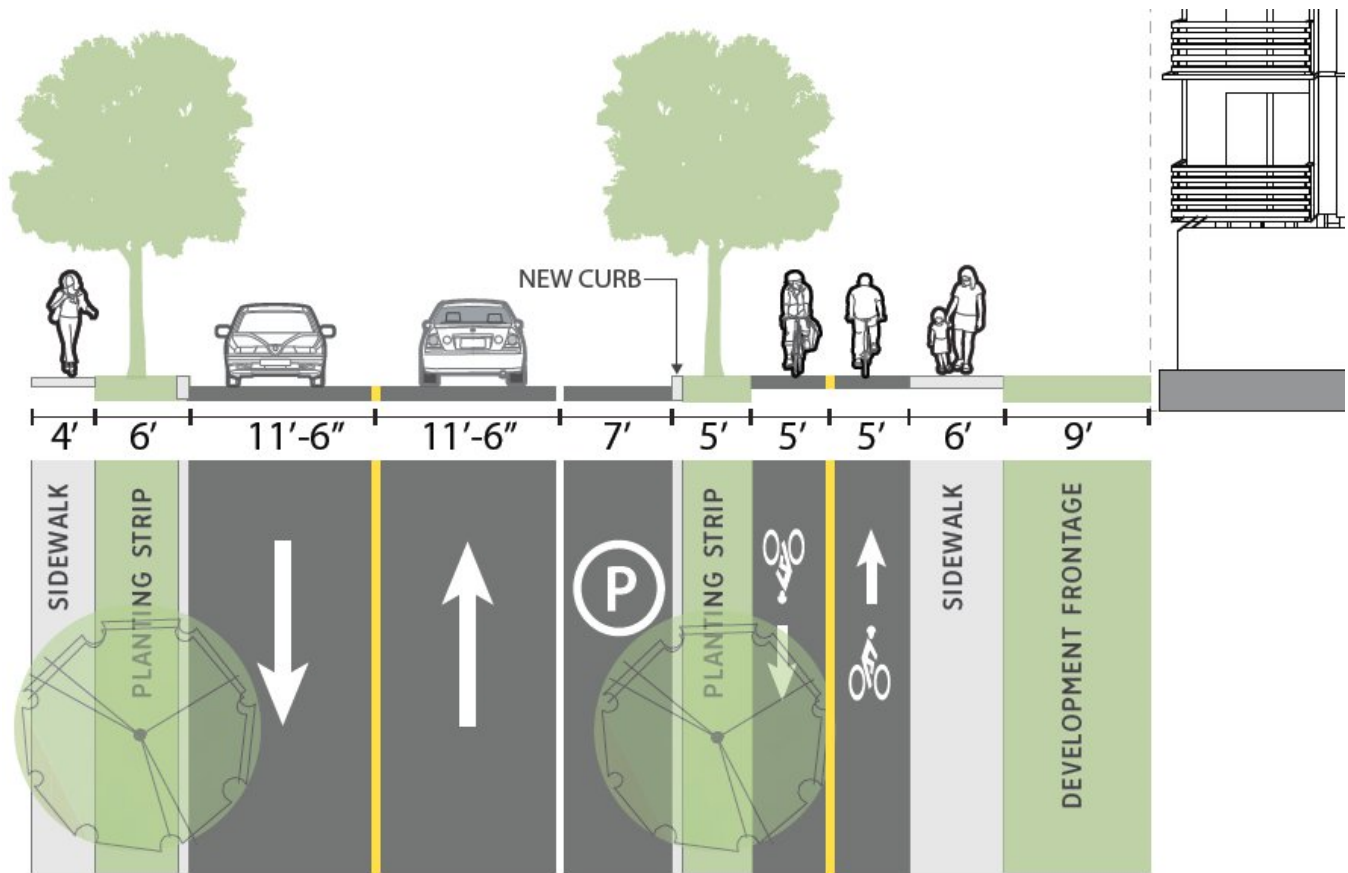
One variation of the design ('Option A') would utilize the existing southern curb along Monroe, shown in the cross section on the following page. Retaining the existing curb-to-curb width of Monroe would allow for an eastbound bike lane to be provided in the uphill direction for people who desire to continue biking along Monroe at street level. The downside of this option is that the distance between buildings of the proposed development and the sidewalk would be about 4', less than the current design assumption of 9'. As the City of Milwaukie Planning Department staff have observed, a 4' setback would minimize the functional setback of the building. Additionally, the planned sidewalk is already within the 15' easement. The Planning Department strongly prefers to retain the 9' distance between the buildings and the sidewalk.



**Sidewalk Level 2-Way Bike Facility Concept (Street Alignment Option A)**  
 Monroe St between Oak St and 37th Ave (Looking East)

The other variation of the design ('Option B') would retain the distance of about 9' between the buildings of the proposed development and the future sidewalk by not providing a street-level uphill bike lane, therefore narrowing the curb-to-curb width of Monroe. A cross section of this variation along Monroe is shown on the following page. While this option would more closely match the most recently proposed design of the development, the biggest downside is that it would introduce a gap in the on-street bike lane network along Monroe in the uphill direction, affecting people who desire to continue biking along Monroe at street level. Another downside is that the southern curb along Monroe would need to be fully reconstructed, increasing the costs of this option as compared to 'Option A'.

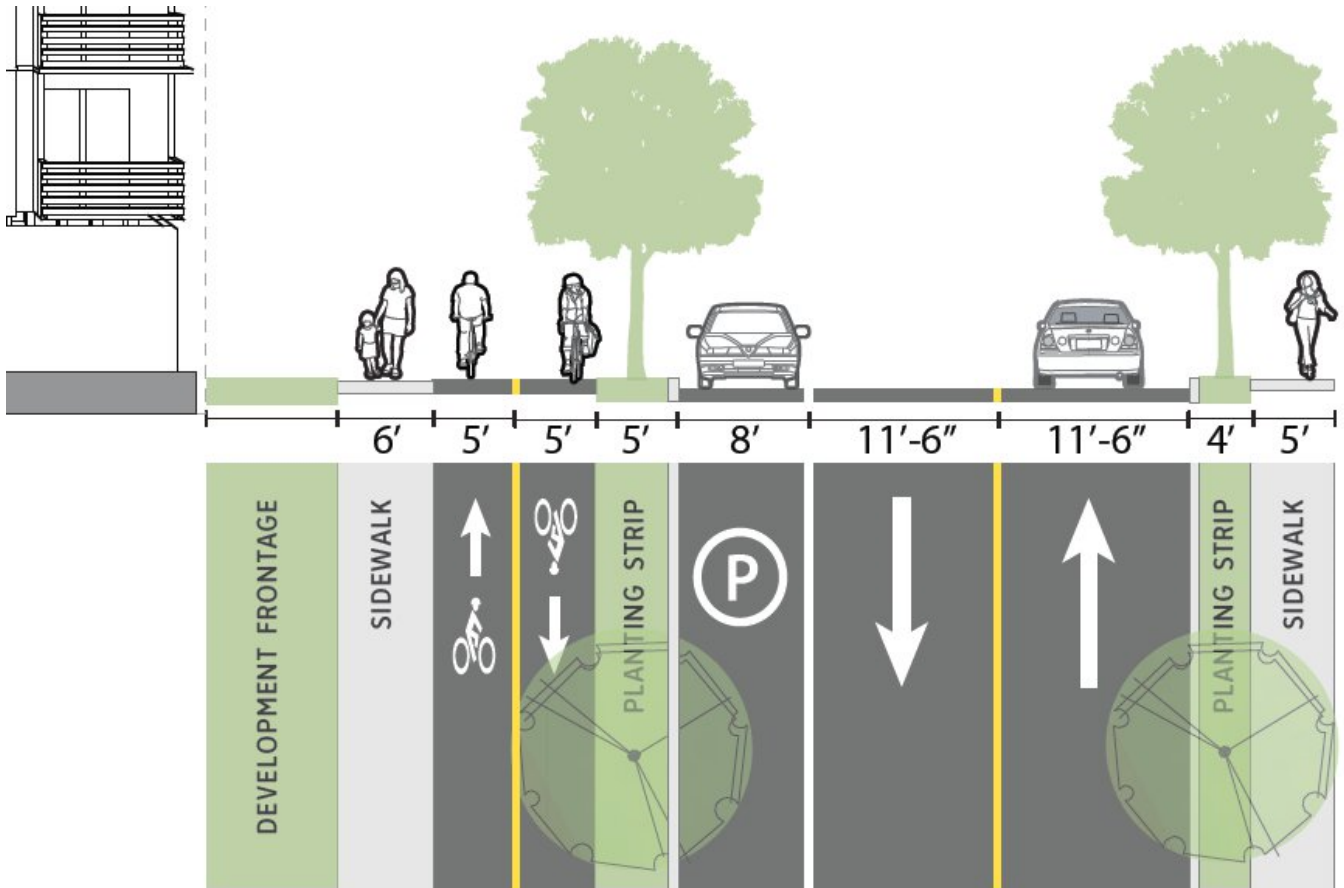
Both street alignment options would not provide a painted westbound bike lane along Monroe, as compared to the recent development proposal. In addition, both options would also require minor realignment of travel lanes east of 37th, resulting in the loss of some on-street parking spaces.



**Sidewalk Level 2-Way Bike Facility Concept (Street Alignment Option B)**  
 Monroe St between Oak St and 37th Ave (Looking East)

Both variations of the proposed greenway facility would result in the same cross section along 37th, shown on the following page. The main difference between this option and the current design of the proposed development is the inability to retain the existing curb at the SW corner of the intersection of 37th at Monroe. The 3-lane intersection approach would transition to 2 lanes at SE Jefferson, at which point on-street parking spaces along the west side of 37th can be defined with the use of a curb extension. On-street parking would not be allowed north of SE Jefferson as is currently proposed. In addition, the recommended street alignment option would not provide painted bike lanes along 37th, as is reported to be the case for the recent development proposal.

Note: the western edge of the west sidewalk shown on the following page would match the location of sidewalk proposed within the most recent development plans. The eastern curb of 37th as shown below reflects the location of existing curb.



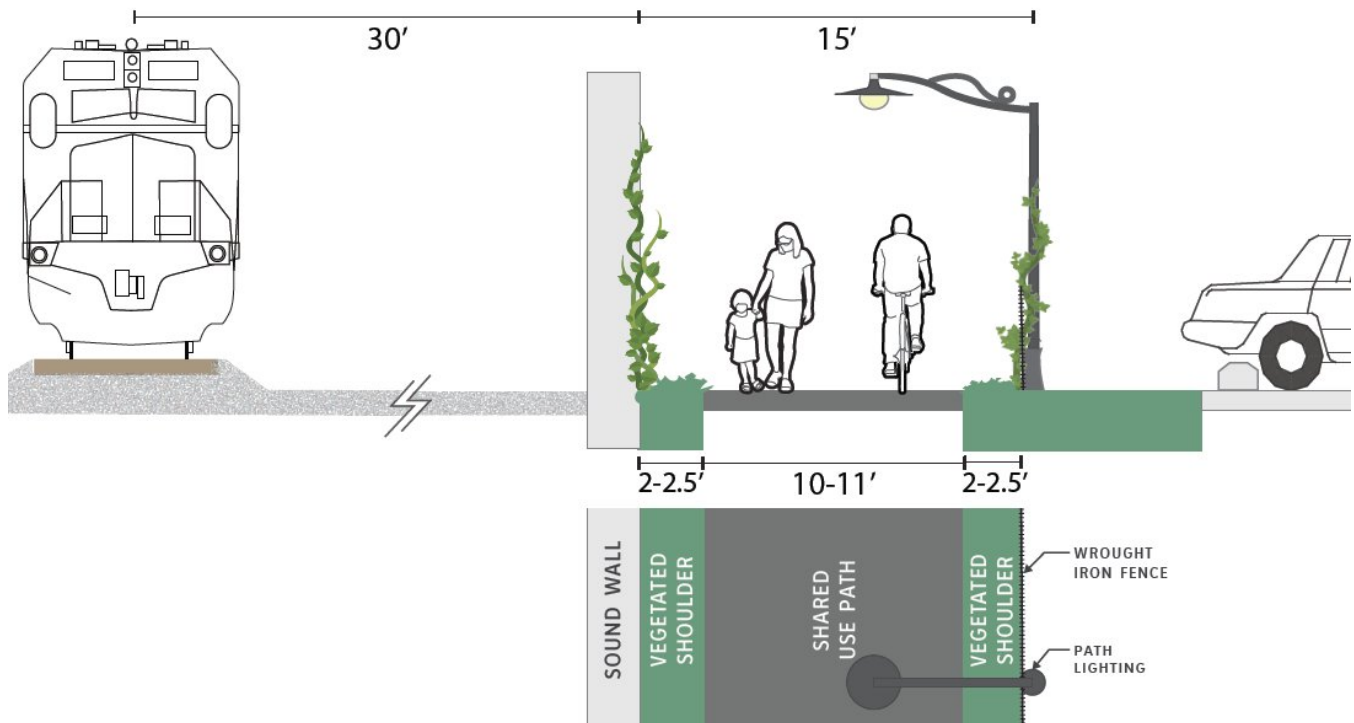
**Sidewalk Level 2-Way Bike Facility Concept (Street Alignment Options A & B)**  
 37th Ave between Washington St and Jefferson St (Looking North)

The two street alignment concepts described within this section are shown in detail in plan view within the attachments of this memo.

## Desired Widths

### MONROE PLAN TRAIL ALIGNMENT

In general, a SUP is recommended to be a minimum of 10' wide with shoulders that have a minimum 2' clear distance. Therefore, the path within the currently proposed 15' easement could be widened up to 11' if desired. Due to the need to include shoulders as part of the design, the path should be centered within the easement rather than positioned on one side of the easement. An example cross section of the preferred position and style of the SUP is shown below.



**Shared Use Path between Railroad with Sound Wall and Back of Uncovered Parking Area**  
Between Oak St and 37th Ave (Looking West)

### STREET ALIGNMENT CONCEPT

A minimum of 15' is needed to properly provide separate facilities for pedestrians and bidirectional bicyclists, with 5' allocated for pedestrians and 10' for two-way bikes. We recommend a facility that is 16' wide to provide a 6' wide sidewalk for a better walking environment.

### PROS/CONS

The wider operating space of the street alignment concept would allow for pedestrians and bicyclists to be better separated from one another, as would be the case throughout the remainder of the proposed greenway route. The Monroe Plan trail alignment option would require users to share the space and safely navigate past each other when passing. It should be

noted that the Monroe Plan trail alignment would also contain the 6' wide sidewalk facility around the development, resulting in the same dedicated walking space for both scenarios.

## **Travel Distance / Elevation Gain**

An online routing tool was used to determine the segment distance and elevation gain for the two alignment options.

### **MONROE PLAN TRAIL ALIGNMENT**

Approximately 1,300' in length, with about 7' elevation gain in the eastbound direction and 3' elevation gain in the westbound direction.

### **STREET ALIGNMENT CONCEPT**

Approximately 1,500' in length, with about 18' elevation gain in the eastbound direction and 11' elevation gain in the westbound direction.

### **PROS/CONS**

The Monroe Plan trail alignment option would be easier and faster for bicyclists and pedestrians, in terms of both travel distance and elevation gain.

Note: the values provided above are estimates and should be verified in the field prior to choosing an alignment.

## **Oak/Campbell Street Connections**

### **INTERIM CONNECTION**

The timing of the development-related improvements will likely be different than changes that require approval of the railroad. However, early coordination efforts with the railroad may result in approval of crossing improvements to be made by the time the Monroe Street Greenway project is ready for construction. This section explores how the alignment options would connect to existing bike networks in the surrounding area during the interim condition.

### **MONROE PLAN TRAIL ALIGNMENT**

The western terminus of the trail presents difficulties connecting westbound trail users to the on-street network. However, it is not expected that many trail users will use the facility until the Monroe Street Greenway project is implemented.

The most difficult connection would be for westbound trail users attempting to access either the westbound lane of Campbell or the southbound lane of Oak. The most likely route would be to cross the railroad tracks by turning south, then use the existing 6' wide asphalt approaches, maneuvering across the service driveway associated with the shopping center, and utilizing the marked crossing across the southern leg of Oak at Campbell. Trail users attempting to travel southbound on Oak would be able to depart the crosswalk and do so. Users choosing to safely navigate to Campbell westbound would then utilize the marked crosswalk across the western leg of the intersection of Campbell at Oak.

However, due to the complexity of the crossings of the railroad, driveway, and streets, all within a relatively short distance, some may take a more direct, but less safe, route.

Eastbound trail users would travel along a more predictable on-street route to access the trail, but the design of the entrance to the trail could present complications. For example, if there is a northbound bike ramp to allow access to the trail from Oak, eastbound users could be expected to consistently utilize the ramp in a predictable manner but westbound users may be attracted to use the ramp and enter the roadway to cross at a location where access control significantly restricts crossings of Oak. Similarly, if no bike ramp is provided at the western terminus of the trail, eastbound users will be required to access the trail via the sidewalk or driveway south of the railroad.

#### STREET ALIGNMENT CONCEPT

Eastbound bicyclists coming from south of the railroad tracks via Campbell or Oak would travel within the roadway and be given the opportunity to enter the facility via a bike ramp.

Westbound bicyclists traveling toward areas south of the railroad tracks via Campbell or Oak would be directed to depart from the subject property and cross Oak at the intersection with Monroe and then utilize the shared lane along Oak southbound. The bike facility along the western edge of the proposed development would be a 5' wide unidirectional facility northbound.



## LONG-TERM CONNECTION

It is assumed that long-term connections associated with this portion of the Monroe Street Greenway will consist of approved and constructed full-width crossings of the railroad itself in conjunction with safety enhancements. This section explores how the alignment options would connect to existing bike networks in the surrounding area.

### MONROE PLAN TRAIL ALIGNMENT

The western point of the trail would connect to an upgraded crossing of the railroad. However, existing issues connecting bicyclists to/from the trail would remain, such as navigating across the service driveway associated with the shopping center, as well as the indirect connection to westbound Campbell if relying on the marked crosswalks. A more direct crossing to Campbell westbound from the north side of the shopping center service driveway could be envisioned cutting through the existing median barrier with a marked crossing, but its proximity to the railroad presents challenges that would need to be approved and mitigated with a signalized intersection as recommended in the *Monroe Street Neighborhood Greenway Concept Plan*. Similar to the interim condition, eastbound bicyclists could be provided with a bike ramp to access the facility, however, westbound users may be attracted to use the curb cut and enter the roadway to cross at a location where access control is in place to significantly restrict the crossing of Oak. Similarly, if no curb cut is provided at the western terminus of the trail, eastbound users will be required to access the trail via the sidewalk or driveway south of the railroad.

### STREET ALIGNMENT CONCEPT

Eastbound bicyclists coming from south of the railroad tracks via Campbell or Oak would travel within the roadway and be given the opportunity to enter the facility via a bike ramp. Westbound bicyclists traveling toward areas south of the railroad tracks via Campbell or Oak could be directed depart the subject property to cross Oak at the intersection with Monroe and then utilize a separated bike facility along the west side of Oak in the southbound direction as was recommended in the Monroe Street Greenway Concept Plan.

## PROS/CONS

Overall, the street alignment option would provide intuitive connections to both Oak and Campbell for both the interim and full buildout scenarios, for both east- and westbound users. The Monroe Plan trail alignment option presents concerns for connections to both Oak and Campbell, particularly during the interim condition.

## **Railroad Ave Connection**

This section explores how the alignment options would connect to the existing bike network along Railroad Avenue west of Oak Street.

### **INTERIM AND LONG-TERM CONNECTIONS**

#### MONROE PLAN TRAIL ALIGNMENT

The western terminus of the trail would not provide a direct connection to existing bike routes along Railroad Avenue. It would be expected that people biking along Railroad Avenue to/from the Monroe Street Greenway would utilize the planned bike lanes along Monroe Street to access the Monroe Street Greenway. If people biking along Railroad Avenue have a strong desire to access the western terminus of the trail segment, they could be accommodated with a relatively short segment of a bidirectional bike facility along the western edge of the proposed development.

#### STREET ALIGNMENT CONCEPT

People biking eastbound along Railroad Avenue would either opt to remain on-street (and travel within the proposed uphill bike lane along Monroe if the 'Option A' design is chosen), or they would likely enter the bidirectional raised bike facility at the SE corner of Oak and Monroe. Bicyclists planning to travel westbound along Railroad Avenue would either locate themselves in the shared westbound lane of Monroe or utilize the bidirectional raised bike facility to then cross to the north side of the roadway via marked crosswalks at the intersection of Oak at Railroad/Monroe.

## PROS/CONS

Overall, the street alignment option would provide the most direct connection to Railroad Ave for both the interim and full buildout scenarios. However, the downside is that westbound bicyclists choosing to ride within the roadway would not have a dedicated bike lane as is currently proposed in the trail alignment option. Furthermore, if the trail alignment is chosen, a relatively short segment of a bidirectional bikeway could be included along the east side of Oak to more directly connect bicyclists between Railroad Ave and the proposed trail.

## Monroe/37th Connection

This section explores how the alignment options would connect to the existing bike network along Monroe east of 37th.

### INTERIM AND LONG-TERM CONNECTIONS

#### MONROE PLAN TRAIL ALIGNMENT

The eastern terminus of the trail would not provide a direct connection to existing bike routes along Monroe, users would likely instead opt for the painted on-street bike facilities to connect to the Monroe bike lanes.

#### STREET ALIGNMENT CONCEPT

Eastbound bicyclists utilizing the bidirectional raised and separated bike facility along Monroe who have a desire to remain on Monroe would transition to the on-street facilities at the intersection of Monroe at 37th. If the 'Option A' design is selected, a bike ramp would connect eastbound bicyclists to the eastbound bike lane. However, if 'Option B' is selected, there would be no dedicated bike facility to receive bicyclists via a bike ramp, therefore no bike ramp could be provided in a safe manner and they would be expected to enter the roadway via a curb ramp at the SW corner of the intersection.

'Option A' could have the unintended consequence of encouraging bicyclists to remain along Monroe east of 37th, significantly altering travel routes and resulting in a reduced utilization of the Monroe Street Greenway route by bicyclists immediately east of 37th. 'Option B' would more intuitively route greenway users toward Washington Street but still allow local access to

Monroe facilities, if desired. Westbound/downhill bicyclists along Monroe approaching the intersection are not expected to access the raised and separated bidirectional bike facility for a single block, but could do so via the pedestrian infrastructure.

#### PROS/CONS

The street alignment option provides a more direct connection to the intersection of 37th at Monroe, potentially at the expense of underutilization of Washington Street by greenway users.

### **37th/Washington Connection**

This section explores how the alignment options could potentially connect to the planned greenway network along Washington Street east of 37th.

#### **INTERIM AND LONG-TERM CONNECTIONS**

##### MONROE PLAN TRAIL ALIGNMENT

The proposed development eliminates most of the turning movement conflicts associated with the planned driveway along 37th. It is recommended to revise the median traffic diverter currently designed to prohibit eastbound through trips from entering the neighborhood and instead plan for a full closure of the eastern leg of the intersection to prohibit all motor vehicle trips from entering/exiting the neighborhood. Other traffic diverter options can be reviewed in detail.

##### STREET ALIGNMENT CONCEPT

A raised bidirectional bike facility along the east side of the proposed development (west side of 37th) would be best transitioned across 37th to Washington Street along the northern leg of the intersection, to avoid crossing the bike facility with the proposed driveway. Given that such a crossing would position eastbound bicyclists within the northern portion of Washington Street, it is recommended that a full closure of the eastern leg of the intersection to prohibit all motor vehicle trips from entering/exiting the neighborhood be utilized to provide the safest treatment for eastbound bicyclists traveling in a contraflow direction.

## PROS/CONS

The Monroe Plan trail alignment provides the most direct connection to the intersection of 37th at Washington.

### **Railroad Avenue Multi-Use Path (37th to Linwood)**

A multi-use trail is planned to be located along the north side of the railroad tracks between 37th and Linwood Ave, approximately 1.5 miles in length. The length of the planned trail, and the direct connection to the trail currently planned along the southern portion of the development, would result in an extremely important and direct link of the bike network, once fully implemented.

If the proposed development were to incorporate the street alignment bikeway concept as described within this memo, it is our recommendation that the 15' easement for the Monroe Plan trail segment adjacent to the development be retained for future implementation by the City.

The Railroad Avenue multi-use path would be a distinctly different type of bike facility, serving a different part of the city. Retaining the easement for future construction of the trail would provide a connection the Monroe Greenway and access to other parts of the city. Therefore, the long-term plans for this trail alignment should be retained even if opting for the street alignment option.

### **Perceived Safety Issues**

This section provides items that should be considered for addressing potential safety concerns associated with either type of facility.

#### MONROE PLAN TRAIL ALIGNMENT

- There are currently no direct connections between the proposed development and the trail to activate and promote desired activity along the trail segment.
- There are currently no escape routes proposed between the sound wall / chain link fence and the development, which can lead to the feeling of becoming trapped within this area. Providing a well-lit and open area would improve the feel of the trail alignment.

- Relocating the proposed car ports to other parking areas within the site plan would further open up the pathway in a visual manner to the development and create a safer feeling.
- The sound wall and any other walls constructed along the trail segment can have climbing vegetation planted at the base to discourage graffiti as the plants grow to cover the wall.
  - The sound wall, as proposed between the trail and the rail corridor, is the preferred location.
- The fence between the trail and the development should be an attractive and open style of fence, such as wrought iron, rather than a chain link fence.

#### STREET ALIGNMENT CONCEPT

- This route option is fairly welcoming and attractive to the casual user. The main safety issue that would be associated with this alignment would be the conflicts with motorized vehicles at intersections with driveways.
  - A right-in/right-out driveway providing access to Monroe from the subject property would be preferred over a full movement access point to reduce the number of possible conflicts and complexity of the intersection.
  - Pavement markings and warning signs should be used to alert drivers to the presence of two-way bike and pedestrian traffic.
- The only other conflicts between users would be people walking across the bidirectional bike facility to/from parked cars within the parallel parking spaces. While speed differential between pedestrians and bicyclists will be slow, some confusion/uncertainty is expected to occur at first until people become familiar with the area.

#### PROS/CONS

The street alignment option would likely be trusted as the safer route option over time by the majority of the greenway users, as there is risk that a short segment of trail could become an unsafe area and could degrade further as a result. If the trail alignment is chosen, the City will need to be fully committed to ensuring it is a safe route throughout the future. As the Railroad Avenue path is fully implemented, the trail segment adjacent to the development would be expected to be much more utilized and relied upon as a trusted segment within the bike network.

## Conclusion

Based on our review of the alignment options we feel that the street alignment concept should be the preferred alternative associated with the development, while retaining the 15' trail easement at the southern property boundary. The alignment around the proposed development would have better visibility, providing a perceived high level of safety. The visibility of the on-street facility from those living in the proposed development, as well as those traveling the adjacent roadway, will make it a more viable option for users in a consistent manner through the future. We believe that the additional distance and elevation gain associated with this alignment is worth the tradeoff, as the facility would connect better to other nearby roadways in the immediate future and better serve a majority of the users expected to travel through the area, especially in the interim condition. The additional cost of about 200 LF of a 10' asphalt surface would be approximately \$40,000.

The Monroe Plan trail alignment option will be a relatively short trail segment for the foreseeable future, but part of a much longer trail once the Railroad Avenue path is constructed. If the trail segment were constructed in conjunction with the development, it would be especially important to design and maintain the facility with attractiveness and user safety in mind, to avoid the public perception that the short segment is a safety concern which could potentially result in an underutilized bike facility along the remaining portion of the Monroe Street Greenway route. If the trail segment is neglected, greenway users may opt for a different route around the proposed development, either via standard width sidewalks around the perimeter of the development, or higher-stress on-street painted bike facilities. The benefits of choosing the trail alignment as part of the development would be a more direct connection along the greenway at an easier grade, but at the expense of indirect connections to other nearby roadways. The cost of about 1,100 LF of a 10' pervious concrete trail surface plus landscaping would be approximately \$185,000.

## Attachments

- *McFarland Property Monroe Greenway Alignment – Cross Sections*
- *McFarland Property Monroe Greenway Alignment – Concept Plans*