



City of Tigard Memorandum

To: Project Team
From: Courtney Furman, P.E., Senior Project Engineer
Re: Tiedeman Avenue Multimodal Study Evaluation Criteria Summary
Date: November 16, 2023

Design alternatives for Tiedeman Avenue were split into two categories for evaluation - intersection alternatives and roadway segment or cross-section alternatives. The intersection and cross-section alternatives will be combined into a corridor-wide preferred alternative. The two intersections included in the alternatives analysis were:

- **Intersection #1:** Tiedeman Avenue/Tigard Street (see Table 3)
- **Intersection #2:** Tiedeman Avenue/Greenburg Road & North Dakota Street (see Table 4)

Several cross-section alternatives were developed that illustrate different pedestrian and bike facility options for the corridor. Tiedeman Avenue has varying ROW widths, contexts, and adjacent land uses, so a “one-size fits all” approach will likely not be practical. The cross sections under consideration are shown in Table 1, and range from 42 to 66 feet in width, featuring multi-use paths in all cases. For the purposes of the study, the corridor has been divided into 4 unique segments and the proposed cross-section alternatives were evaluated with a context sensitive approach for each segment. The four segments on Tiedeman Avenue are as follows:

- **Segment #1:** Walnut Street to Fanno Creek Bridge (see Table 5)
- **Segment #2:** Fanno Creek Bridge to Tigard Street (see Table 6)
- **Segment #3:** Tigard Street to Railroad Tracks (see Table 7)
- **Segment #4:** Railroad Tracks to Greenburg Road (not evaluated since the cross section is heavily dependent on the intersection configuration)

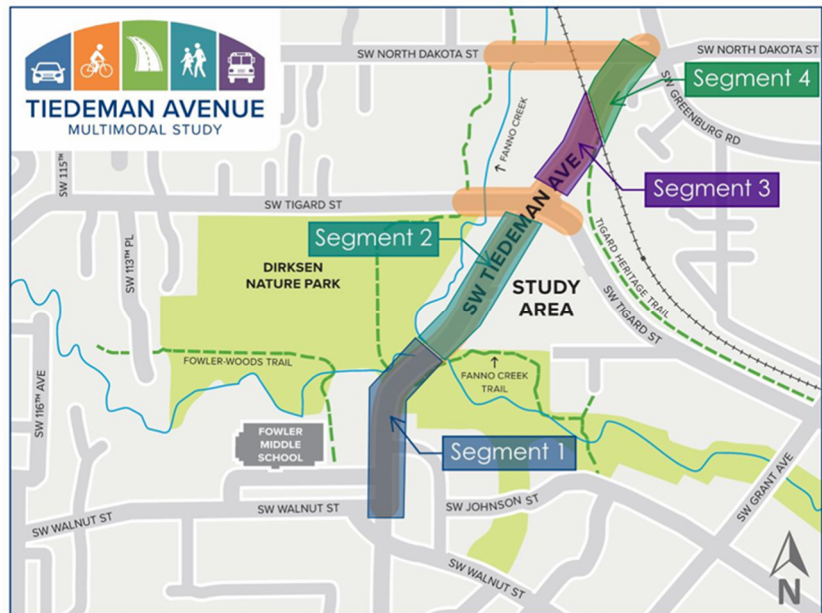
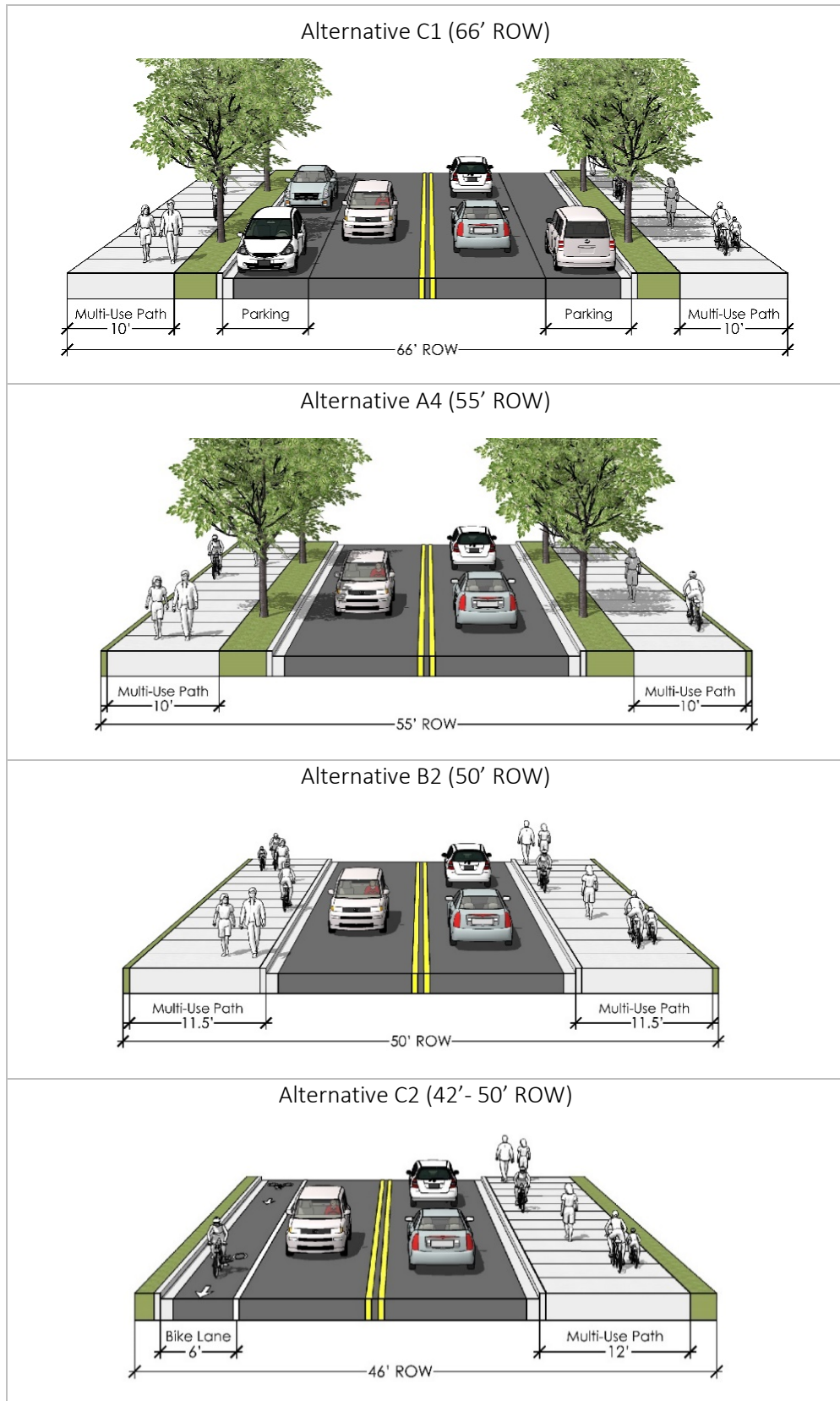


Table 1: Tiedeman Avenue Cross Section Alternatives



The evaluation criteria, by which the alternatives were evaluated were developed based on the goals of the Tiedeman Avenue Multimodal Study. The goals of the study include:

- Develop preferred cross section for Tiedeman Avenue that integrates solutions for multimodal transportation, safety, and operations, while balancing impacts to public utilities, private properties, and local businesses.
- Improve pedestrian and bike connectivity to regional trails in the area.
- Improve traffic operations, queueing, safety, and circulation at the study intersections.

Table 2 summarizes the proposed evaluation criteria and performance measures for the cross section and intersection design alternatives for the Tiedeman Avenue Multimodal Study.

- **Evaluation Criteria:** derived from the goals and needs for the study.
- **Performance Measures:** measures used to assess the evaluation criteria.
- **Description:** purpose and explanation of evaluation criteria, connecting the criteria to the specific community values for the study.

Table 2: Evaluation Criteria and Performance Measures

Evaluation Criteria	Description	Performance Measures
Costs & Impacts	Minimizes cost (ROW, stormwater, utilities, etc.) relative to project benefits. There are no major maintenance concerns with the proposed project.	<ul style="list-style-type: none"> • Cost (roadway footprint, materials) • Impacts to Private Property • Stormwater Management • Impacts to Natural Resources (trees, waterways, wetlands, etc.) • Maintenance
Connectivity	Provides connectivity to existing facilities.	<ul style="list-style-type: none"> • Pedestrian Connectivity • Bike Connectivity • Trail Connectivity
Community Support	Positive community support and aligns with community priorities from public surveying.	<ul style="list-style-type: none"> • Public Opinion from Surveying
User Experience	Provides comfortable facilities for people walking and biking.	<ul style="list-style-type: none"> • Pedestrian Level of Traffic Stress (PLTS) • Bike Level of Traffic Stress (BLTS)
Safety	Provides safety countermeasures that reduce the frequency of fatal and severe injury crashes and encourage slower speeds, which reduce crash severity.	<ul style="list-style-type: none"> • Crash Modification Factors (CRFs)
<i>Traffic Operation</i>	<i>Provides a future year condition which meets City Operating Standards.</i>	<ul style="list-style-type: none"> • <i>City Operating Standards</i>

Italicized = Only considered for the intersection alternative evaluations

The results of the evaluation criteria for each intersection and roadway segment are shown in Tables 3 through 7. Additional details are available in the Greenburg Road/Tiedeman Avenue Study Concept Design Alternatives Memorandum dated September 21, 2023.

Table 3: Evaluation Criteria Scoring – Tiedeman Avenue / Tigard Street Intersection Alternatives

Evaluation Criteria	Performance Measures	Alternative 1: No Build (Ped/bike facilities only)	Alternative 2: AWSC w/ NB & SB Left-Turn Lanes	Alternative 3: Traffic Signal	Alternative 4: Traffic Signal w/ NB & SB Left-Turn Lanes	Alternative 5: Traffic Signal w/ NB & SB Left-Turn Lanes and WBR Removal	Alternative 6: Roundabout
Cost & Impacts	Construction Cost	Good (+1)	Fair (+0)	Good (+1)	Fair (+0)	Fair (+0)	Poor (-1)
	Impacts to Private Property	Good (+1)	Fair (+0)	Good (+1)	Fair (+0)	Fair (+0)	Poor (-1)
	Impacts to Natural Resources (Trees, Waterways, Wetlands)	Good (+1)	Fair (+0)	Good (+1)	Fair (+0)	Fair (+0)	Fair (+0)
	Maintenance	Good (+1)	Good (+1)	Fair (+0)	Fair (+0)	Fair (+0)	Good (+1)
	Costs & Impacts Weighted Score	+1	+0.25	+0.75	0	0	-0.25
Community Support	Public Opinion from Surveying	Good (+1)	Fair (+0)	Fair (+0)	Fair (+0)	Fair (+0)	Good (+1)
	Community Support Weighted Score	+1	0	0	0	0	+1
Safety	Crash Reduction Factors	Fair (+0)	Fair (+0)	Good (+1)	Good (+1)	Good (+1)	Good (+1)
	Safety Weighted Score	0	0	+1	+1	+1	+1
Traffic Operations	City Operating Standards	Poor (-1)	Fair (+0)	Good (+1)	Good (+1)	Good (+1)	Good (+1)
	Traffic Operations Weighted Score	-1	0	+1	+1	+1	+1
Overall Weighted Score		+1	+0.25	+2.75	+2	+2	+2.75

Green = Good, Yellow = Fair, Red = Poor

Table 4: Evaluation Criteria Scoring – Tiedeman Avenue / Greenburg Road & North Dakota Street Intersection Alternatives

Evaluation Criteria	Performance Measures	Alternative 1: No Build (Ped/bike facilities only)	Alternative 2: Improved TWSC w/ EB Right-Turn Lane	Alternative 3: Improved TWSC w/ Restricted EB Left-Turns	Alternative 4: Traffic Signal (Coordinated w/ Greenburg Road Signal)	Alternative 5: Dogbone Roundabout
Cost & Impacts	Construction Cost	Good (+1)	Fair (+0)	Good (+1)	Poor (-1)	Poor (-1)
	Impacts to Private Property	Good (+1)	Fair (+0)	Fair (+0)	Good (+1)	Poor (-1)
	Impacts to Natural Resources (Trees, Waterways, Wetlands)	Good (+1)	Fair (+0)	Good (+1)	Good (+1)	Fair (+0)
	Maintenance	Good (+1)	Good (+1)	Good (+1)	Fair (+0)	Good (+1)
	Costs & Impacts Weighted Score	+1	+0.25	+0.75	+0.25	-0.25
Community Support	Public Opinion from Surveying	Fair (+0)	Fair (+0)	Poor (-1)	Fair (+0)	Good (+1)
	Community Support Weighted Score	0	0	-1	0	+1
Safety	Crash Reduction Factors	Fair (+0)	Fair (+0)	Good (+1)	Good (+1)	Good (+1)
	Safety Weighted Score	0	0	+1	+1	+1
Traffic Operations	City Operating Standards	Poor (-1)	Poor (-1)	Good (+1)	Good (+1)	Poor (-1)
	Traffic Operations Weighted Score	-1	-1	+1	+1	-1
Overall Weighted Score		0	-0.75	+1.75	+2.25	+0.75

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Table 5: Evaluation Criteria Scoring – Tiedeman Avenue Segment 1 (Walnut St to Fanno Creek Bridge) Cross Section Alternatives

Evaluation Criteria	Performance Measures	Alternative C1 (66' ROW): Multi-Use Path with Landscape Buffer and Parking Lane (both sides)	Alternative A4 (55' ROW): Multi-Use Path with Landscape Buffer (both sides)
Cost & Impacts	Construction Cost	Poor (-1)	Fair (+0)
	Impacts to Private Property	Fair (+0)	Good (+1)
	Stormwater Management	Fair (+0)	Good (+1)
	Impacts to Natural Resources (Trees, Waterways, Wetlands)	Fair (+0)	Good (+1)
	Maintenance	Poor (-1)	Fair (+0)
	Costs & Impacts Weighted Score	-0.4	+0.6
Connectivity	Pedestrian Connectivity	Good (+1)	Good (+1)
	Bike Connectivity	Good (+1)	Good (+1)
	Trail Connectivity	Good (+1)	Good (+1)
	Connectivity Weighted Score	+1	+1
Community Support	Public Opinion from Surveying	Good (+1)	Fair (+0)
	Property Owner	Fair (+0)	Fair (+0)
	Community Support Weighted Score	+0.5	+0
Non-Motorized User Experience	Bicycle Level of Traffic Stress	Good (+1)	Good (+1)
	Pedestrian Level of Traffic Stress	Good (+1)	Fair (+0)
	User Experience Weighted Score	+1	+0.5
Safety	Crash Reduction Factors	Good (+1)	Good (+1)
	Safety Weighted Score	+1	+1
Overall Weighted Score		+3.1	+3.1

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Table 6: Evaluation Criteria Scoring – Tiedeman Avenue Segment 2 (Fanno Creek Bridge to Tigard St) Cross Section Alternatives

Evaluation Criteria	Performance Measures	Alternative A4 (55' ROW): Multi-Use Path with Landscape Buffer (both sides)	Alternative B2 (50' ROW): Multi-Use Path without Landscape Buffer (both sides)	Alternative C2 (42'- 50' ROW): Bike Lane (one side) and Multi- Use Path with buffer (one side)
Cost & Impacts	Construction Cost	Poor (-1)	Fair (+0)	Good (+1)
	Impacts to Private Property	Poor (-1)	Fair (+0)	Good (+1)
	Stormwater Management	Good (+1)	Poor (-1)	Fair (+0)
	Impacts to Natural Resources (Trees, Waterways, Wetlands)	Fair (+0)	Fair (+0)	Good (+1)
	Maintenance	Fair (+0)	Good (+1)	Fair (+0)
	Costs & Impacts Weighted Score	-0.2	0	+0.6
Connectivity	Pedestrian Connectivity	Good (+1)	Good (+1)	Fair (+0)
	Bike Connectivity	Good (+1)	Good (+1)	Good (+1)
	Trail Connectivity	Good (+1)	Good (+1)	Fair (+0)
	Connectivity Weighted Score	+1	+1	+0.33
Community Support	Public Opinion from Surveying	Good (+1)	Fair (+0)	Fair (+0)
	Property Owner	Poor (-1)	Fair (+0)	Good (+1)
	Community Support Weighted Score	+0	0	+0.5
Non-Motorized User Experience	Bicycle Level of Traffic Stress	Good (+1)	Good (+1)	Good (+1)
	Pedestrian Level of Traffic Stress	Good (+1)	Good (+1)	Fair (+0)
	User Experience Weighted Score	+1	+1	+0.5
Safety	Crash Reduction Factors	Good (+1)	Fair (+0)	Fair (+0)
	Safety Weighted Score	1	0	0
Overall Weighted Score		+2.8	+2.0	+1.93

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Table 7: Evaluation Criteria Scoring – Tiedeman Avenue Segment 3 (Tigard St to North Dakota St) Cross Section Alternatives

Evaluation Criteria	Performance Measures	Alternative A4 (55' ROW): Multi-Use Path with Landscape Buffer (both sides)	Alternative B2 (50' ROW): Multi-Use Path without Landscape Buffer (both sides)	Alternative C2 (42'- 50' ROW): Bike Lane (one side) and Multi-Use Path with variable buffer (one side)
Cost & Impacts	Construction Cost	Poor (-1)	Fair (+0)	Good (+1)
	Impacts to Private Property	Fair (+0)	Good (+1)	Good (+1)
	Stormwater Management	Good (+1)	Poor (-1)	Fair (+0)
	Impacts to Natural Resources (Trees, Waterways, Wetlands)	Fair (+0)	Good (+1)	Good (+1)
	Maintenance	Fair (+0)	Good (+1)	Fair (+0)
	Costs & Impacts Weighted Score	0	+0.4	+0.6
Connectivity	Pedestrian Connectivity	Good (+1)	Good (+1)	Fair (+0)
	Bike Connectivity	Good (+1)	Good (+1)	Good (+1)
	Trail Connectivity	Good (+1)	Good (+1)	Fair (+0)
	Connectivity Weighted Score	+1	+1	+0.33
Community Support	Public Opinion from Surveying	Good (+1)	Fair (+0)	Fair (+0)
	Property Owner	Fair (+0)	Fair (+0)	Fair (+0)
	Community Support Weighted Score	+0.5	0	0
Non-Motorized User Experience	Bicycle Level of Traffic Stress	Good (+1) (both sides)	Good (+1)	Good (+1)
	Pedestrian Level of Traffic Stress	Good (+1)	Good (+1)	Fair (+0)
	User Experience Weighted Score	+1	+1	+0.5
Safety	Crash Reduction Factors	Good (+1)	Fair (+0)	Fair (+0)
	Safety Weighted Score	+1	0	0
Overall Weighted Score		+3.5	+2.4	+1.53

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