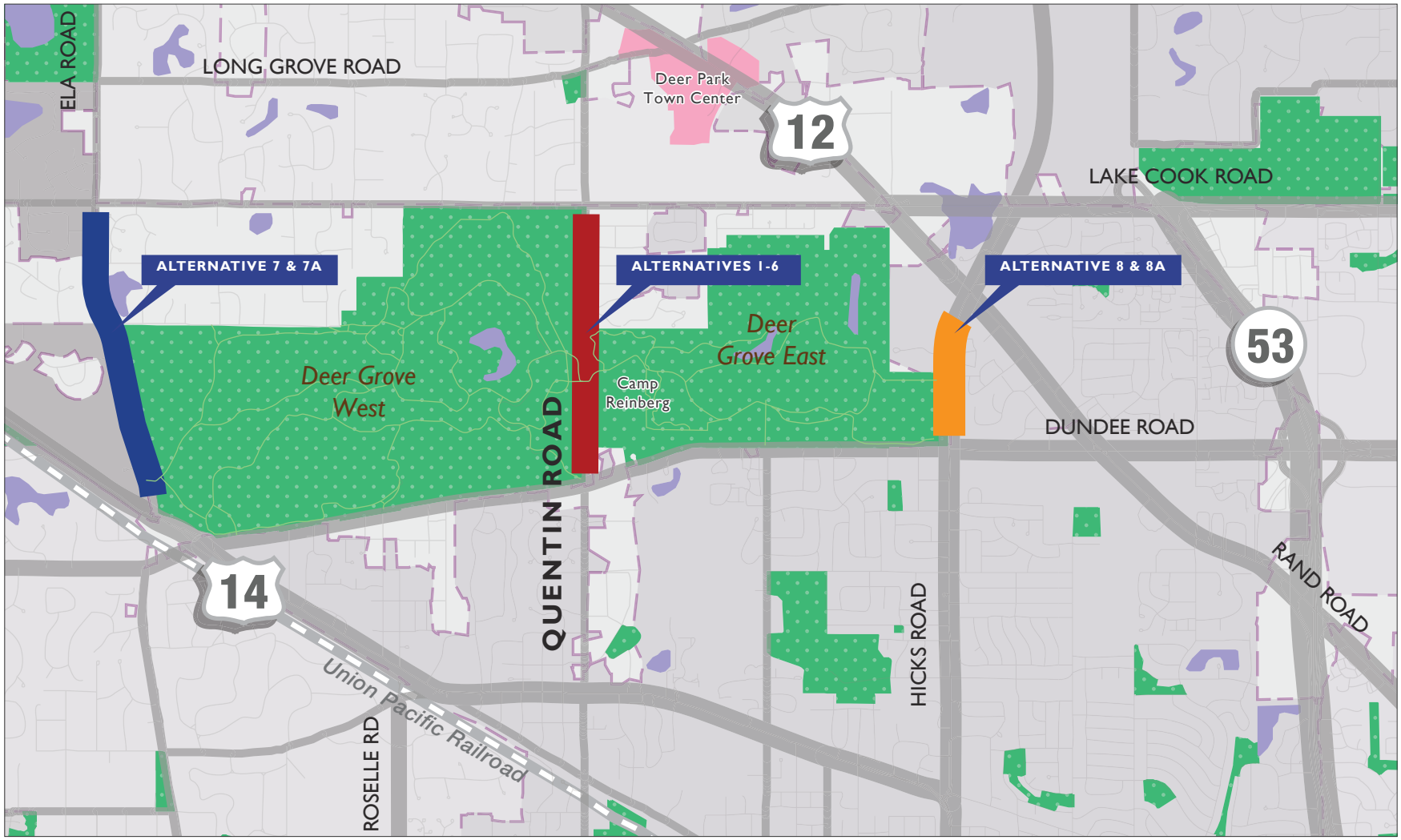
Alternative Analysis Round 1, All Alternatives



LEGEND

5 Lanes	7 Lanes

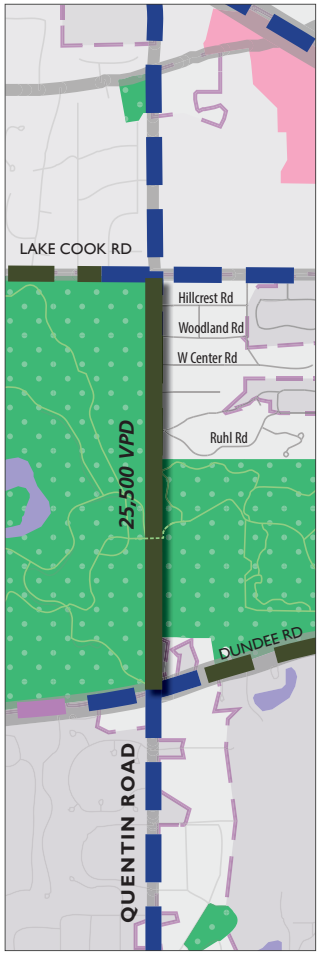
Evaluation Round 1
Alternatives Considered

- Quentin Road Alternatives
  - Alternative 1 - Two-lanes
  - Alternative 2 - Two-lanes with left turn lanes
  - Alternative 3 - Three-lanes
  - Alternative 4 - Four-lanes
  - Alternative 5 - Four-lanes with left turn lanes
  - Alternative 6 - Five-lanes

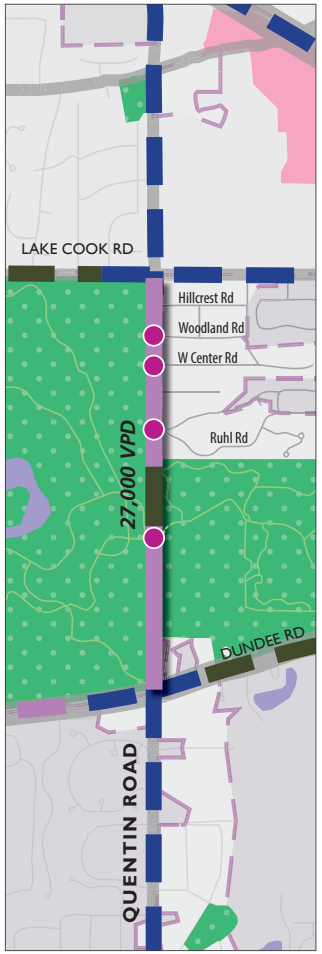
- Other Parallel Route Alternatives
  - Alternative 7 - Five-lane Ela Road (centered)
  - Alternative 7a - Five-lane Ela Road (asymmetric)
  - Alternative 8 - Seven-lane Hicks Road (centered)
  - Alternative 8a - Seven-lane Hicks Road (asymmetric)

Alternative Analysis Round 1, Quentin Road Alternatives

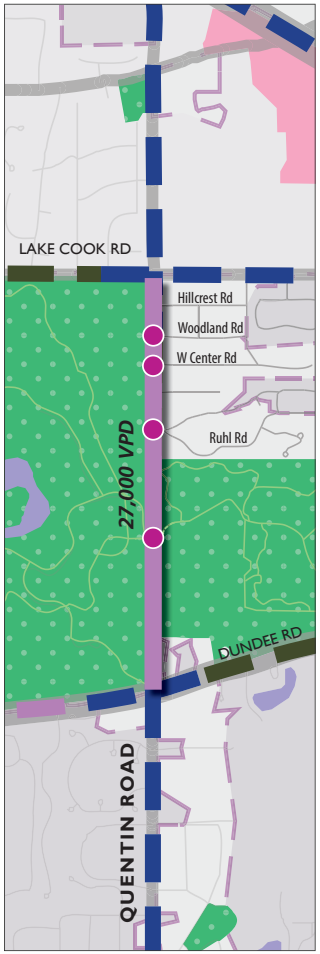
Alternative 1 – Two-Lanes



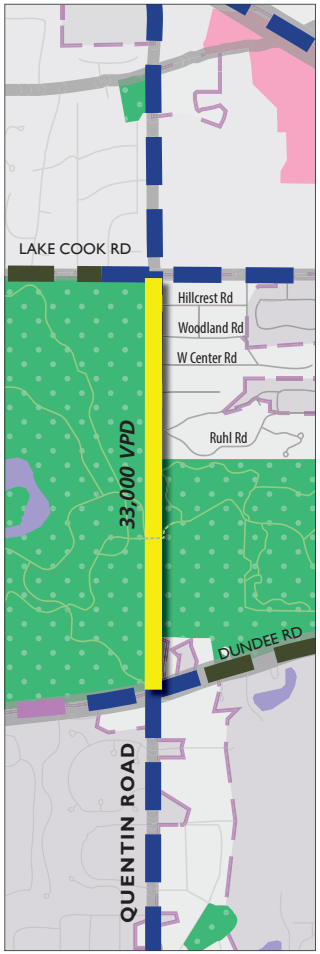
Alternative 2 – Two-Lanes with Left Turn Lanes



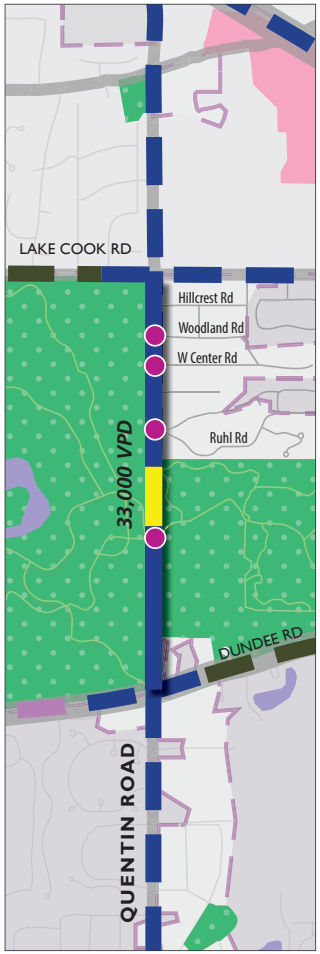
Alternative 3 –Three-Lanes



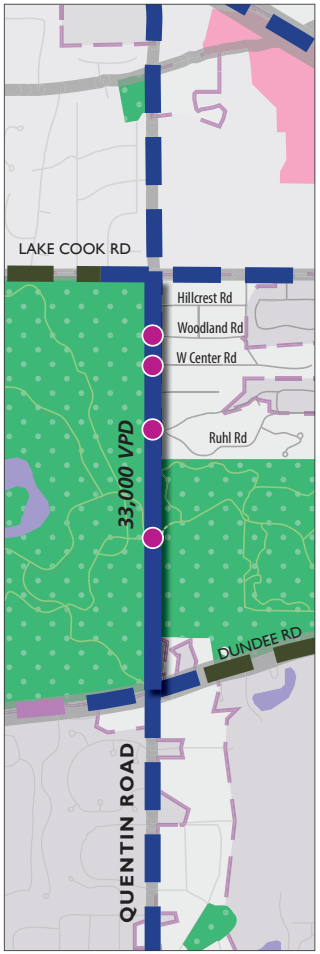
Alternative 4 – Four-Lanes



Alternative 5 – Four-Lanes with Left Turn Lanes



Alternative 6 – Five-Lanes

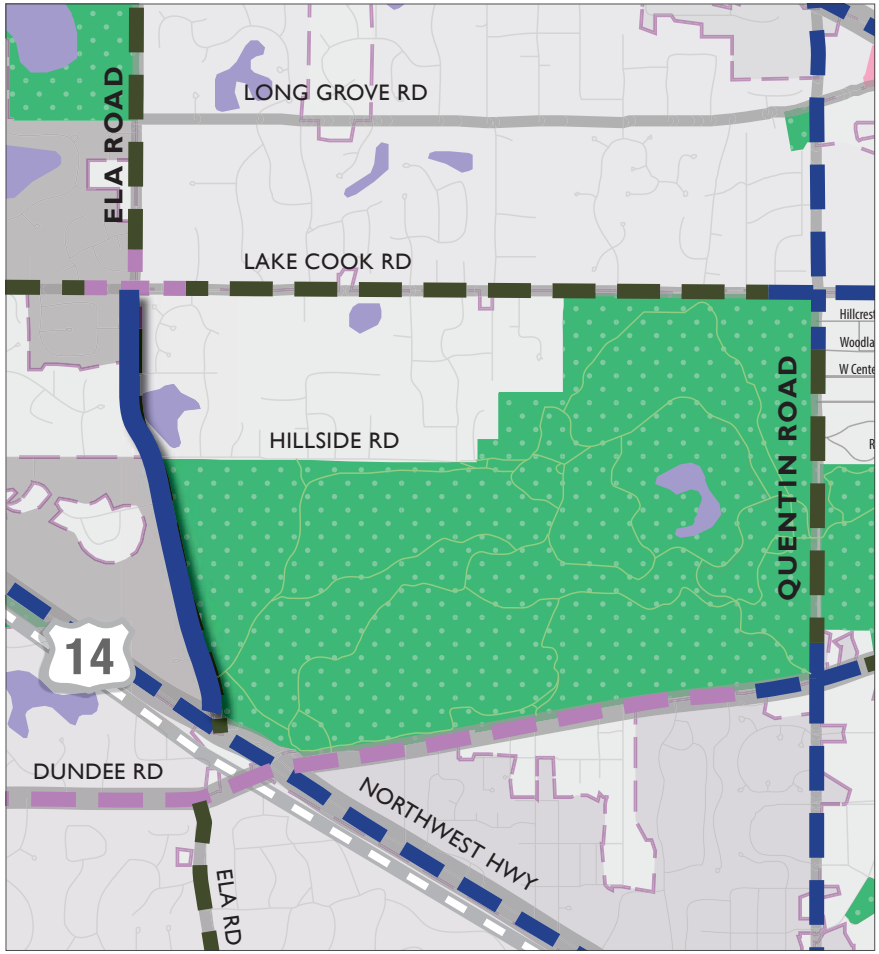


LEGEND

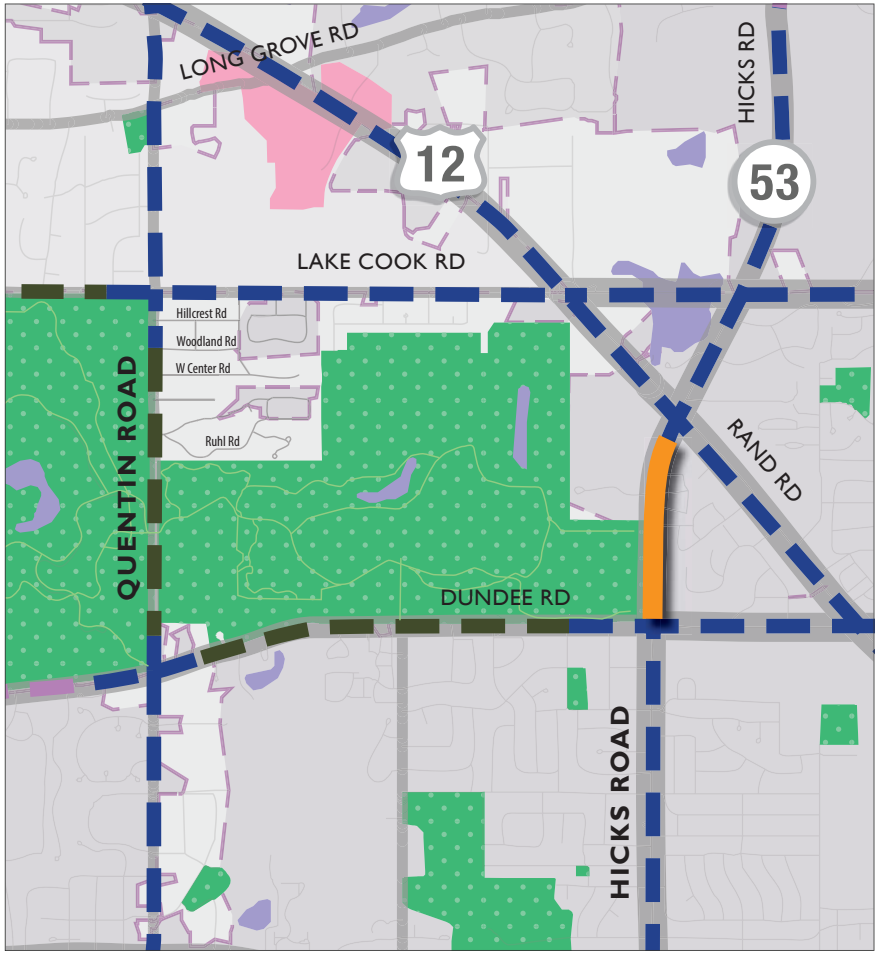
2 Lanes	4 Lanes	7 Lanes
3 Lanes	5 Lanes	Left Turn Lane

Alternative Analysis Round 1, Parallel Route Alternatives

Alternative 7 – Five-Lane Ela Road (Centered)
Alternative 7A – Five-Lane Ela Road (Asymmetric)



Alternative 8 – Seven-Lane Hicks Road (Centered)
Alternative 8A – Seven-Lane Hicks Road (Asymmetric)



LEGEND		
2 Lanes	4 Lanes	7 Lanes
3 Lanes	5 Lanes	

Evaluation Round 1 Criteria

- Improve Facility Condition and Design:
  - Replace the 100 year old failing bridge
  - Reconstruct the poor pavement
  - Correct the steep roadway grades
  - Add medians or left turn lanes
  - Add bicycle and pedestrian facilities
- Improve Safety for Vehicles:
  - Reduce congestion related crashes by adding through lanes
  - Reduce intersection related crashes by adding left-turn lanes and correct the steep roadway grades
- Improve Safety for Non-motorized Traffic:
  - Provide pedestrian and bicycle facilities along Quentin Road
- Effect on the Natural Environment:
  - Loss of Deer Grove Forest Preserve acreage
  - Direct impacts to wetlands
- Improve Mobility:
  - Provide additional through lane capacity to the roadway to ensure safe operations and to meet future traffic needs
  - Provide left-turn lanes to move left turning vehicles out of the through lanes
- Enhance System Linkage for Vehicles:
  - Match the cross section of the roadway to the north and south (number of through lanes and center median for left turn lanes)
  - Provide most direct connection for regional and local traffic
- Enhance System Linkage for Non-motorized Traffic:
  - Provide connection to the existing surrounding trail systems

Evaluation Round I Results

Alternatives	QUENTIN ROAD ROW WIDTH	PURPOSE AND NEED CRITERIA[1]						ENVIRONMENTAL IMPACTS			
			Safety			System Linkage		Natural Environment			
		Facility Condition and Design	Vehicle	Non-motorized	Mobility	Vehicle	Non-motorized	Loss of Deer Grove Forest Preserve Acreage (Acres)		Impacts to Wetlands (Acres)	
No-Build	66' - 83'								0.0		0.00
Quentin Road											
1 - Two-lanes	90'								1.9		0.88
2 - Two-lanes with left turn lanes	90' - 100'								2.6		1.20
3 - Three-lanes	100'								2.9		1.34
4 - Four-lanes	110'								4.0		1.60
5 - Four-lanes with left turn lanes	110' - 120'								4.4		1.76
6 - Five-lanes	120'								4.9		1.96
Parallel Routes											
7 - Five-lane Ela Road (centered)	66' - 83'								1.9		0.0
7a - Five-lane Ela Road (asymmetric)	66' - 83'								0.0		0.0
8 - Seven-lane Hicks Road (centered)	66' - 83'								0.5		0.0
8a - Seven-lane Hicks Road (asymmetric)	66' - 83'								0.0		0.0

Notes:

1. Purpose and Need criteria are only rated as Best, Average, or Relatively Lowest Performance.

LEGEND

- Best Performance
- Good Performance
- Average Performance
- Poor Performance
- Relatively Lowest Performance

Evaluation Round 2
Alternatives Considered

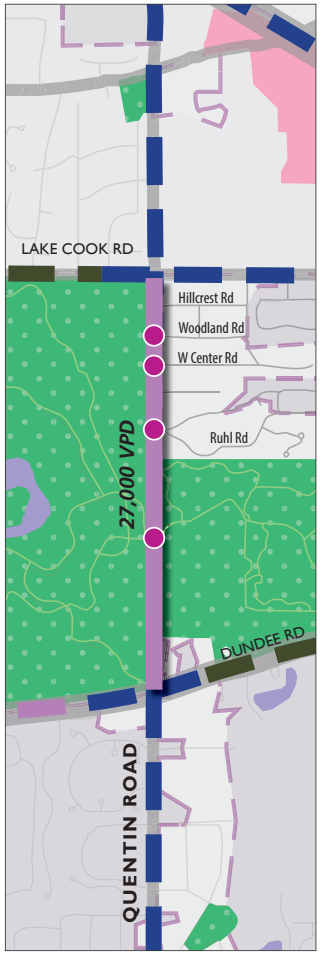
- Quentin Road Alternatives (Continue on from Round 1)
  - Alternative 2 - Two-lane with left turn lane
  - Alternative 3 - Three-lane
  - Alternative 4 - Four-lane
  - Alternative 5 - Four-lane with left turn lane
  - Alternative 6 - Five-lane

- Combination Alternatives (Added based on stakeholder input)
  - Alternative 9 - Two-lane Quentin Road and Five-lane Ela Road
  - Alternative 10 - Two-lane with left turn lane Quentin Road and Five-lane Ela Road
  - Alternative 11 - Three-lane Quentin Road and Five-lane Ela Road
  - Alternative 12 - Two-lane Quentin Road and Seven-lane Hicks Road
  - Alternative 13 - Two-lane with left turn lanes Quentin Road and Seven-lane Hicks Road
  - Alternative 14 - Three-lane Quentin Road and Seven-lane Hicks Road

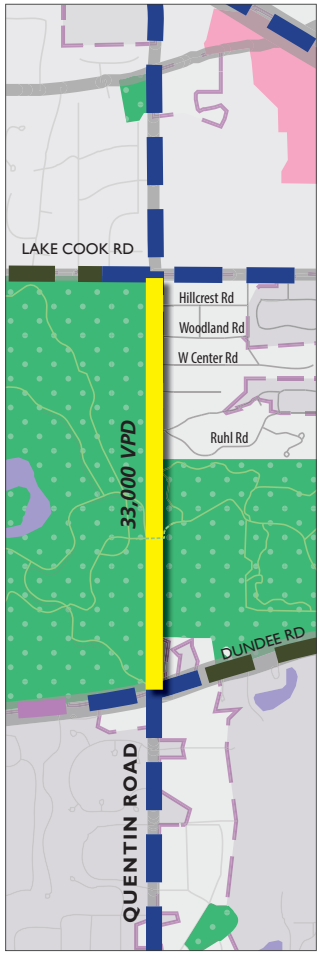
Alternative Analysis Round 2, Quentin Road Alternatives

Alternative 2 – Two-Lanes with Left Turn Lanes

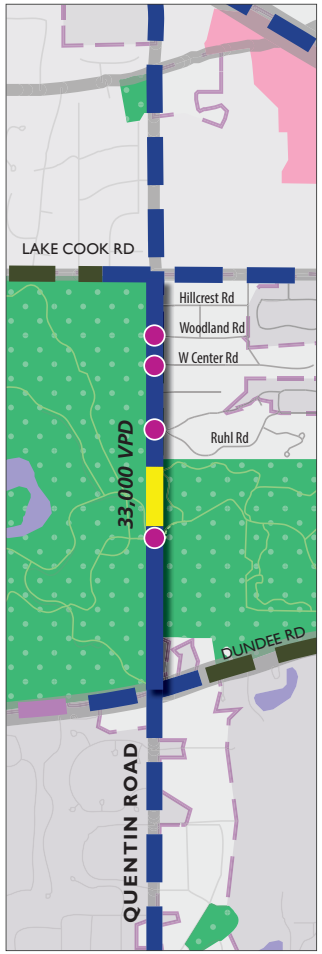
Alternative 3 –Three-Lanes



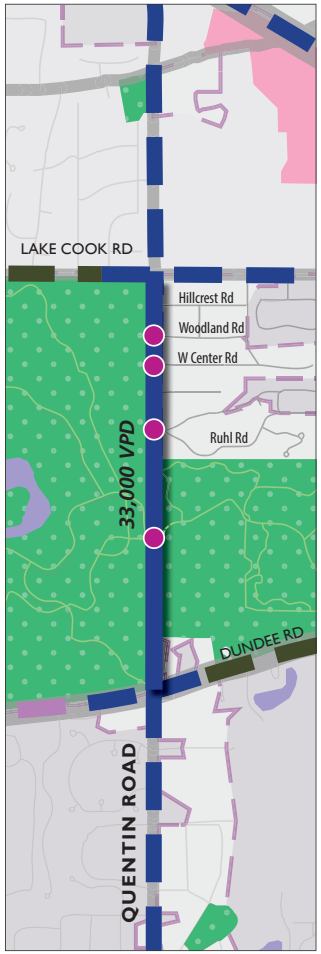
Alternative 4 – Four-Lanes



Alternative 5 – Four-Lanes with Left Turn Lanes



Alternative 6 – Five-Lanes



LEGEND

2 Lanes	4 Lanes	7 Lanes
3 Lanes	5 Lanes	Left Turn Lane

Alternative Analysis Round 2, Combination Alternatives

Alternative 9 – Two-Lane Quentin Road and Five-Lane Ela Road

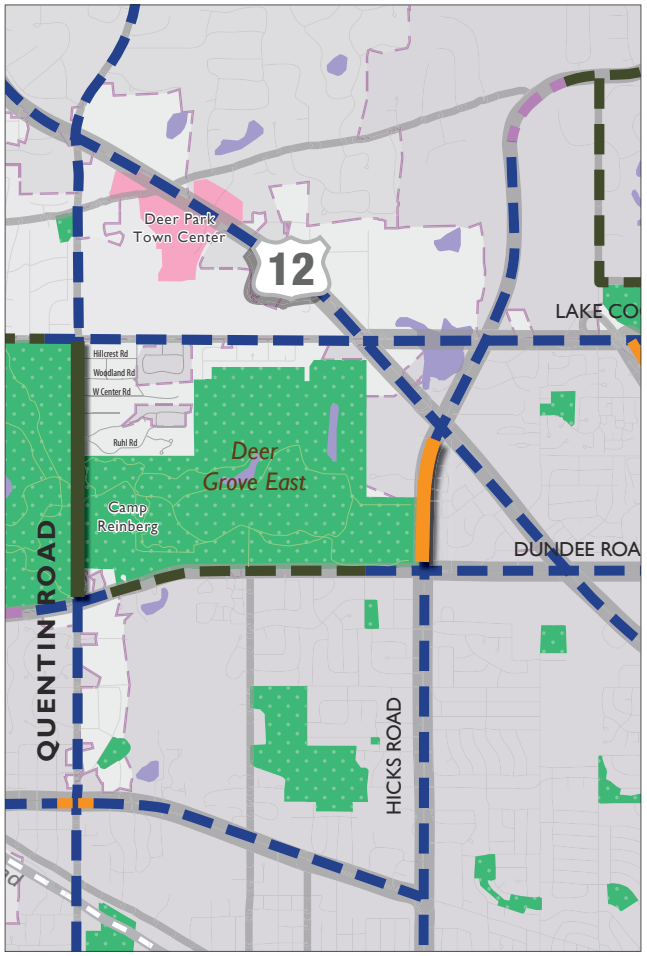
Alternative 10 – Two-Lane with Left Turn Lane Quentin Road and Five-Lane Ela Road

Alternative 11 – Three-Lane Quentin Road and Five-Lane Ela Road

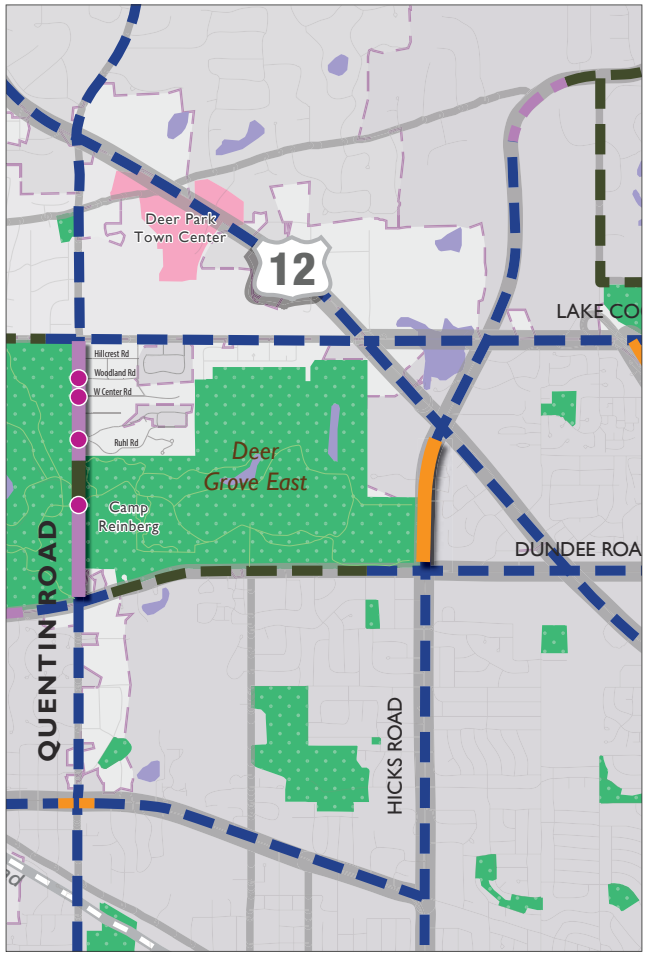
LEGEND		
2 Lanes	4 Lanes	7 Lanes
3 Lanes	5 Lanes	Left Turn Lane

Alternative Analysis Round 2, Combination Alternatives

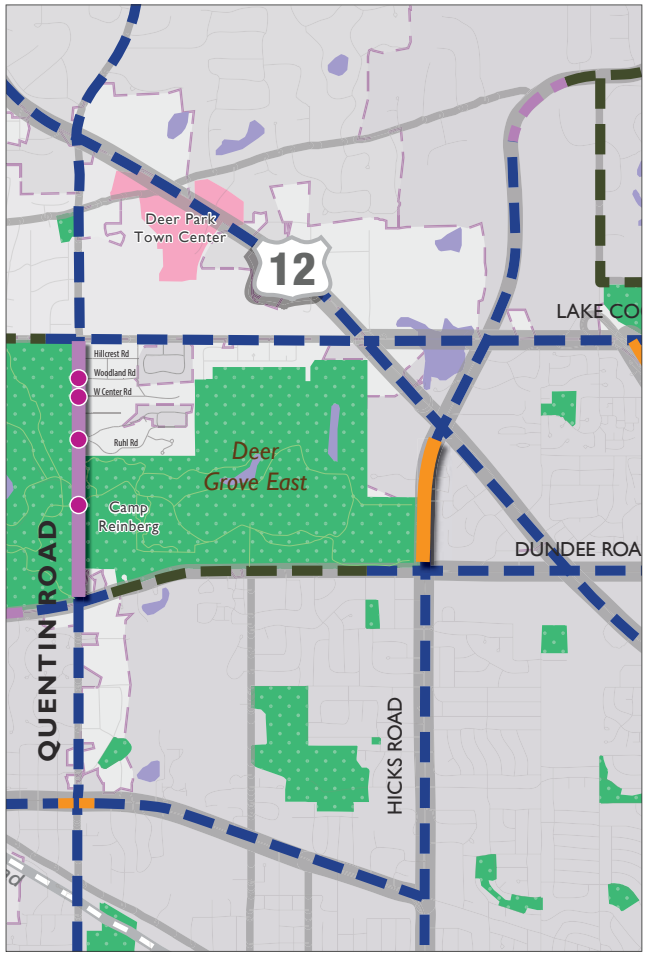
Alternative 12 – Two-Lane Quentin Road and Seven-Lane Hicks Road



Alternative 13 – Two-Lane with Left Turn Lane Quentin Road and Seven-Lane Hicks Road



Alternative 14 – Three-Lane Quentin Road and Seven-Lane Hicks Road



LEGEND

2 Lanes	4 Lanes	7 Lanes
3 Lanes	5 Lanes	Left Turn Lane

Evaluation Round 2 Criteria

- Improve Facility Condition and Design:
  - Replace the 100 year old failing bridge
  - Reconstruct the poor pavement
  - Correct the steep roadway grades
  - Add medians or left turn lanes
  - Add bicycle and pedestrian facilities
- Improve Safety for Vehicles:
  - Reduce congestion related crashes by adding through lanes
  - Reduce intersection related crashes by adding left-turn lanes and correct the steep roadway grades
- Improve Safety for Non-motorized Traffic:
  - Provide pedestrian and bicycle facilities along Quentin Road
- Effect on the Natural Environment:
  - Loss of Deer Grove Forest Preserve acreage
  - Direct impacts to wetlands
- Improve Mobility:
  - Provide additional through lane capacity to the roadway to ensure safe operations and to meet future traffic needs
  - Provide left-turn lanes to move left turning vehicles out of the through lanes
- Enhance System Linkage for Vehicles:
  - Match the cross section of the roadway to the north and south (number of through lanes and center median for left turn lanes)
  - Provide most direct connection for regional and local traffic
- Enhance System Linkage for Non-motorized Traffic:
  - Provide connection to the existing surrounding trail systems
- Effect on the Human Environment
  - Potential displacements of residential property
  - Changes in travel patterns and access on Quentin Road

Evaluation Round 2 Results

Alternatives	QUENTIN ROAD ROW WIDTH	PURPOSE AND NEED CRITERIA[1]						ENVIRONMENTAL IMPACTS						
			Safety			System Linkage		Natural Environment				Human Environment		
		Facility Condition and Design	Vehicle	Non-motorized	Mobility	Vehicle	Non-motorized	Loss of Deer Grove Forest Preserve Acreage (Acres)		Impacts to Wetlands (Acres)		Potential Displacements		Change in Travel Patterns and Access on Quentin Road
No-Build	66' - 83'								0.0		0.00		0	
Quentin Road														
2 - Two-lanes with left turn lanes	90' - 100'								2.6		1.20		0	
3 - Three-lanes	100'								2.9		1.34		0	
4 - Four-lanes	110'								4.0		1.60		0	
5 - Four-lanes with left turn lanes	110' - 120'								4.4		1.76		0	
6 - Five-lanes	120'								4.9		1.96		0	
Combination Alternatives[2]														
9 - Two-lane Quentin Road & Five-lane Ela Road	66' - 83'								1.9		0.88		23	
10 - Two-lanes with left turn lanes Quentin Road & Five-lane Ela Road	90' - 100'								2.6		1.20		23	
11 - Three-lane Quentin Road & Five-lane Ela Road	100'								2.9		1.34		23	
12 - Two-lane Quentin Road & Seven-lane Hicks Road	66' - 83'								1.9		0.88		13	
13 - Two-lanes with left turn lanes Quentin Road & Seven-lane Hicks Road	90' - 100'								2.6		1.20		13	
14 - Three-lane Quentin Road & Seven-lane Hicks Road	100'								2.9		1.34		13	

Notes:

1. Purpose and Need criteria are only rated as Best, Average, or Relatively Lowest Performance.
2. Parallel Route Alternatives considered for evaluation as combination alternatives were those which were shifted away from the forest preserve (Alternatives 7a and 8a) to minimize/avoid impacts to the forest preserve property and resources to the greatest extent possible.

LEGEND

- Best Performance
- Good Performance
- Average Performance
- Poor Performance
- Relatively Lowest Performance

Alternatives Evaluation Flowchart

Evaluation Results
Deer Grove Forest Preserve Bike / Equestrian Crossing

CROSSING	SAFETY		ENVIRONMENTAL IMPACTS				IMPACT TO EXISTING UTILITIES (Y/N)	CONSTRUCTION COST	OPERATION & MAINTENANCE COST
				Trees					
	Vehicle	Non-Motorized	FPCC Property (Acres)	Total (Each)	Exceptional[1] (Each)	Wetlands (Acres)			
No-Build	🔴	🔴	🟢 0.0	🟢 0	🟢 0	🟢 0.00	🟢		
Deer Grove Forest Preserve									
At-Grade Crossing Alternative	🟡	🟡	🟡 2.9	🟡 179	🟡 4	🟡 0.03	🟢	$	$
Underpass Alternative	🟢	🟢	🔴 5.5	🔴 396	🔴 13	🟡 0.07	🔴	$$$	$$$
Overpass Alternative	🟢	🟡	🔴 9.9	🔴 688	🔴 17	🔴 0.31	🟢	$$$$$	$$$$

Note:

1. Exceptional trees are those that are high quality based on their coefficient of conservatism, are large in size, have good structure, health, and provide visually aesthetics. (Tree Survey Report, Huff & Huff, 2016)

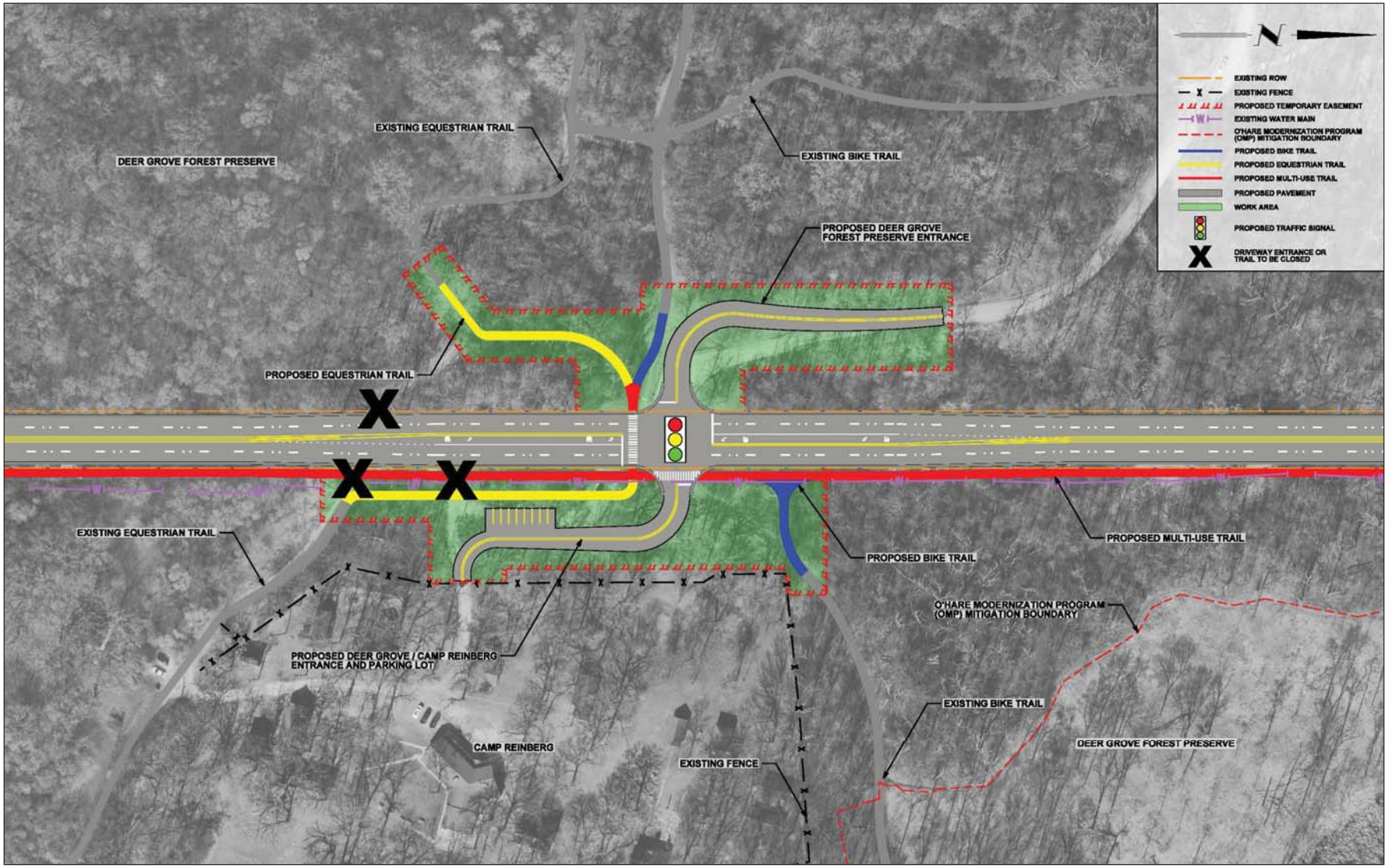
LEGEND

🟢 Best Performance

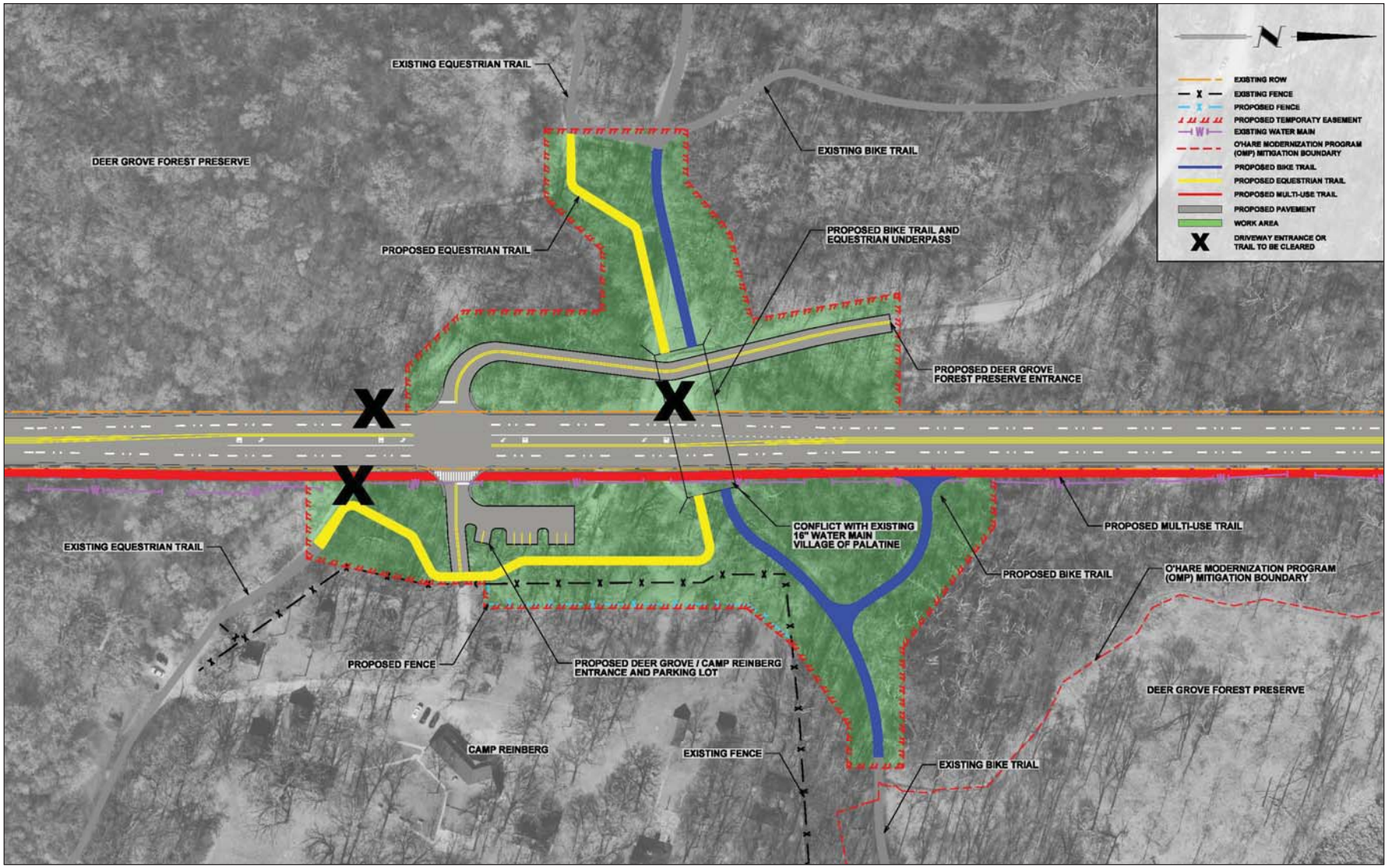
🟡 Next Best Performance

🔴 Relatively Lowest Performance

At-Grade Crossing Alternative



Underpass Alternative



Overpass Alternative