Cook County
Department of Transportation and Highways

Public Meeting No. 3 | November 13, 2018

Main Exhibit Room

Quentin Road Study

Dundee Road to Lake Cook Road

Cook County
Department of Transportation and Highways

Public Meeting No. 3 | November 13, 2018

Welcome to the Quentin Road Public Meeting

Quentin Road Study

Dundee Road to Lake Cook Road

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Department of Transportation and Highways

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Comment Area

Quentin Road Study

Dundee Road to Lake Cook Road

Cook County
Department of Transportation and Highways

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Quentin Road

Public Meeting

2nd Floor

Quentin Road Study

Dundee Road to Lake Cook Road

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Department of Transportation and Highways

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Quentin Road

Public Meeting

Quentin Road Study

Dundee Road to Lake Cook Road

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Same Exhibits On Both Sides

Quentin Road Study

Dundee Road to Lake Cook Road

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Slide Show

Presentation

Quentin Road Study

Dundee Road to Lake Cook Road

QUENTIN ROAD STUDY AREA MAP

0 500 1000
SCALE: 1" = 500'

N

VILLAGE OF LONG GROVE
VILLAGE OF KILDEER
VILLAGE OF DEER PARK
VILLAGE OF PALATINE
VILLAGE OF INVERNESS
DEER GROVE WEST
DEER GROVE EAST

ELA ROAD
LONG GROVE ROAD
U.S. ROUTE 12
QUENTIN ROAD
ILLINOIS ROUTE 53
LAKE COOK ROAD
DUNDEE ROAD
U.S. ROUTE 14
SMITH STREET
HICKS ROAD

Project Location

17,600
18,100
24,300
30,100
22,200
23,000
21,300
23,300
11,600
37,300
23,600
19,100

QUENTIN ROAD STUDY AREA MAP

0 500 1000
SCALE: 1" = 500'

N

VILLAGE OF LONG GROVE
VILLAGE OF KILDEER
VILLAGE OF DEER PARK
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QUENTIN ROAD
ILLINOIS ROUTE 53
LAKE COOK ROAD
DUNDEE ROAD
U.S. ROUTE 14
SMITH STREET
HICKS ROAD

Project Location

18,100
24,300
17,600
30,100
22,200
23,000
21,300
23,300
11,600
37,300
23,600
19,100

Study Area Map Legend

Park Facilities

1. Cuba Marsh Forest Preserve
2. Makray Memorial Golf Club
3. Charles E. Brown Park
4. Countryside West Park
5. Michael D‘Angelo Park
6. Town Center Park
7. Palatine Hills Golf Course
8. Tom T. Hamilton Park
9. Eagle Park
10. Osage Park
11. Celtic Park

Churches

1. Church Of Christ, Palatine
2. Sikh Religious Society Of Chicago
3. New Life Church
4. Holy Resurrection Orthodox Church
5. Countryside Church Unitarian Universalist
6. Northwest Assembly Of God
7. Prince Of Peace Lutheran Church
8. The Church In Palatine
9. New Light Christian Church
10. Seventh-Day Adventist Church
11. Christian Pentecostal Center

Shopping Centers

1. The Quentin Collection
2. Town Center Promenade
3. Deer Park Town Center Shopping Center
4. The Shops At Kildeer
5. Kildeer Marketplace
6. Joe Caputo & Sons
7. Menards
8. City Limits Harley Davidson
9. Knupper Nursery & Landscaping
10. Deer Grove Center

Municipal Facilities

1. Village Of Inverness Village Hall and Police Station
2. Lake Zurich Rural Fire Protection District Station #4

Schools

1. Walter R. Sundling Junior High School
2. Lincoln Elementary School
3. Long Grove Country School
4. Palatine High School
5. Virginia Lake Elementary School

Employment Opportunities

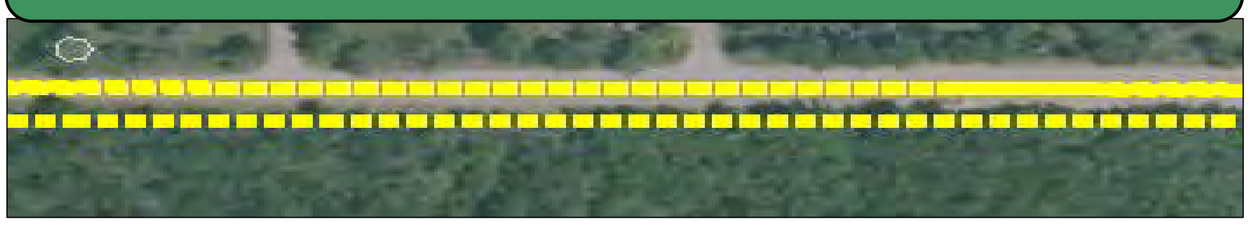
1. Deer Park Office Center
2. Fed Ex

Existing Average Daily Traffic (2015)

Existing Trails

Unpaved Trail – Forest Preserve
Paved Trail – Forest Preserve
Regional & Local Trail – Non Forest Preserve

Village Boundaries



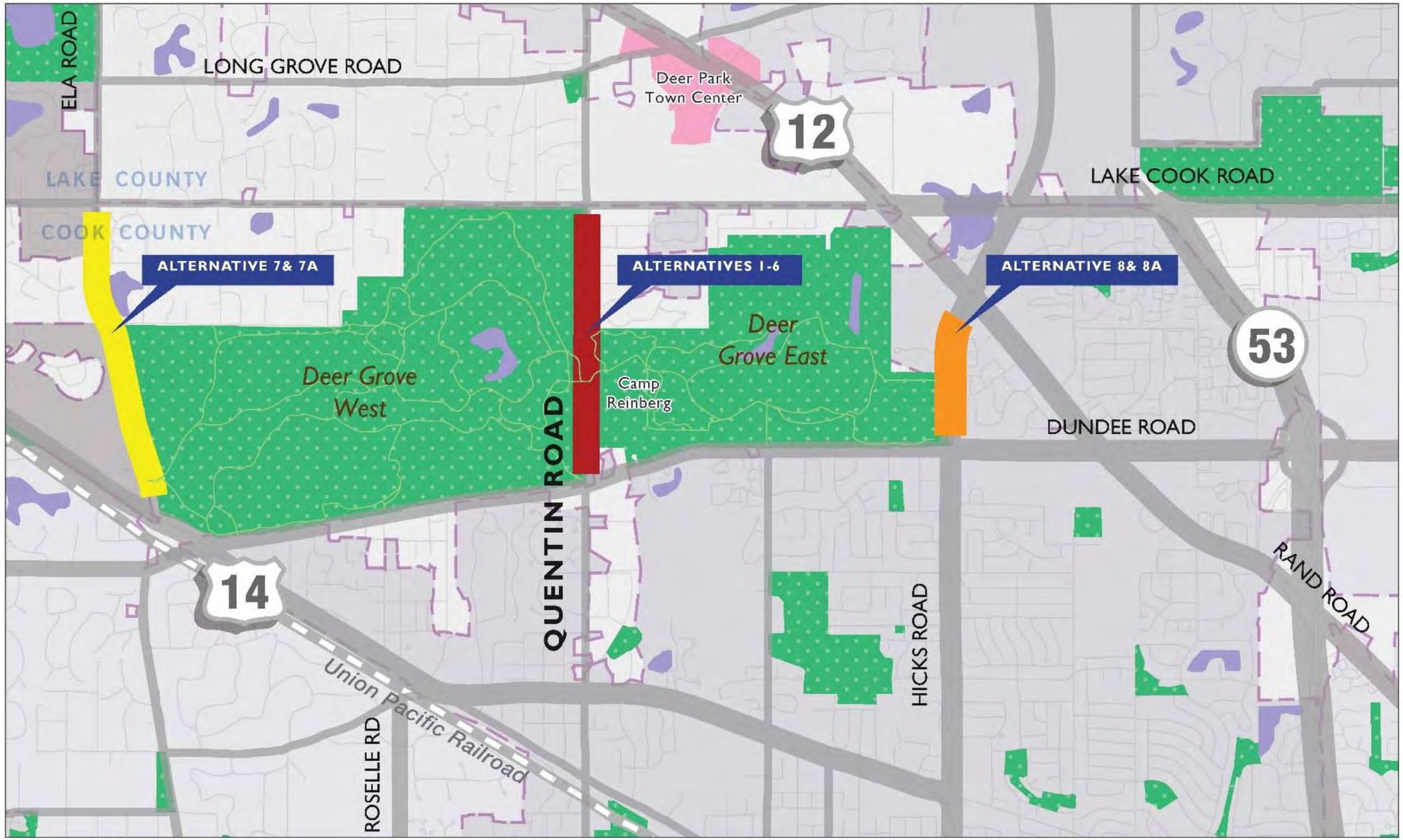
QUENTIN ROAD STUDY
EXISTING CONDITIONS INVENTORY

QUENTIN ROAD STUDY
EXISTING CONDITIONS INVENTORY

Project Purpose and Need

- Established a basis for the range of reasonable alternatives
- Purpose: Address existing and 2040 transportation needs
  - ***Strive to balance the transportation needs with the unique environmental setting along Quentin Road***
- Transportation Needs:
  1. Improve the facility condition and design
  2. Improve safety
  3. Improve mobility
  4. Enhance system linkage

Evaluation Round 1
Alternatives Considered



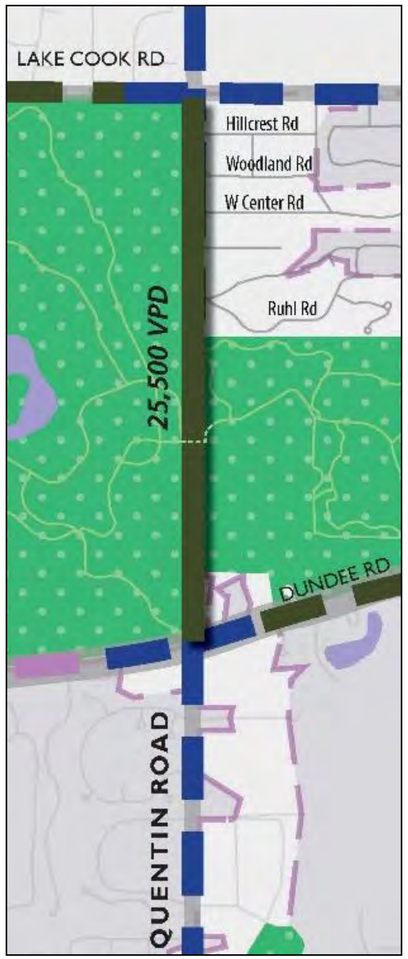
Evaluation Round 1
Alternatives Considered

- 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)

Evaluation Round 1
Quentin Road Alternatives

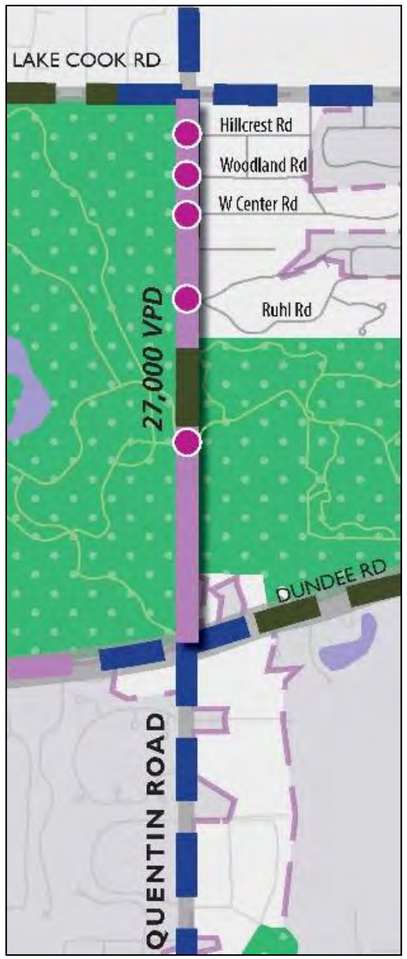
Alternative 1



Two Lanes on Quentin Rd

- One lane in each direction
- No left turn lane
- Same as existing

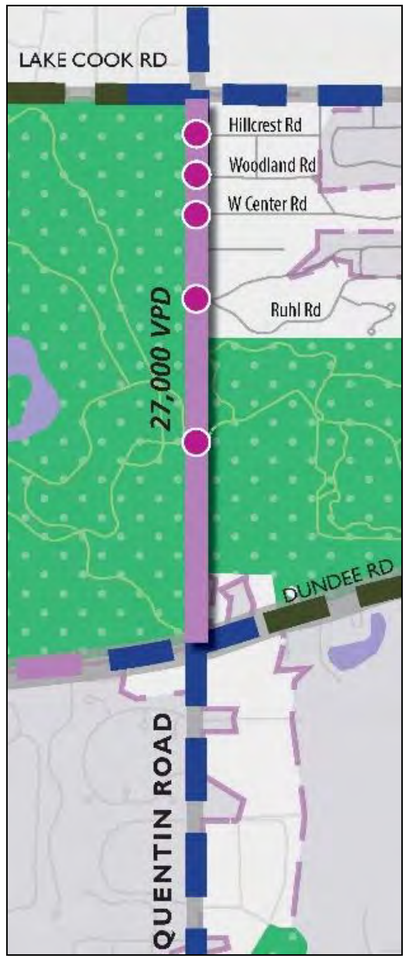
Alternative 2



Two Lanes on Quentin Rd with Left Turn Lanes

- One lane in each direction
- Left turn lane at side streets

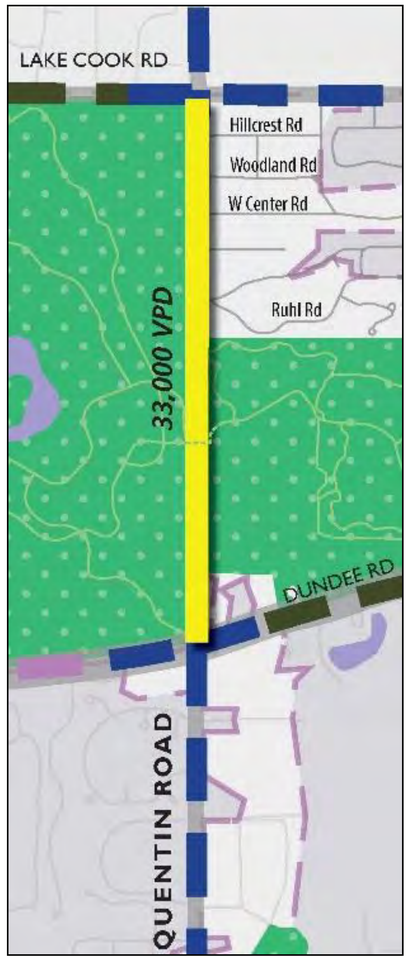
Alternative 3



Three Lanes on Quentin Rd

- One lane in each direction
- Continuous median with left turn lane at side streets

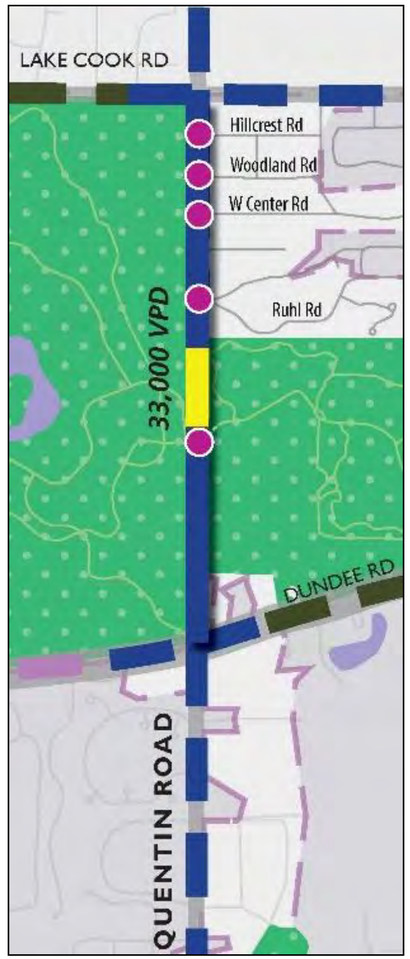
Alternative 4



Four Lanes on Quentin Rd

- Two lanes in each direction
- No left turn lane

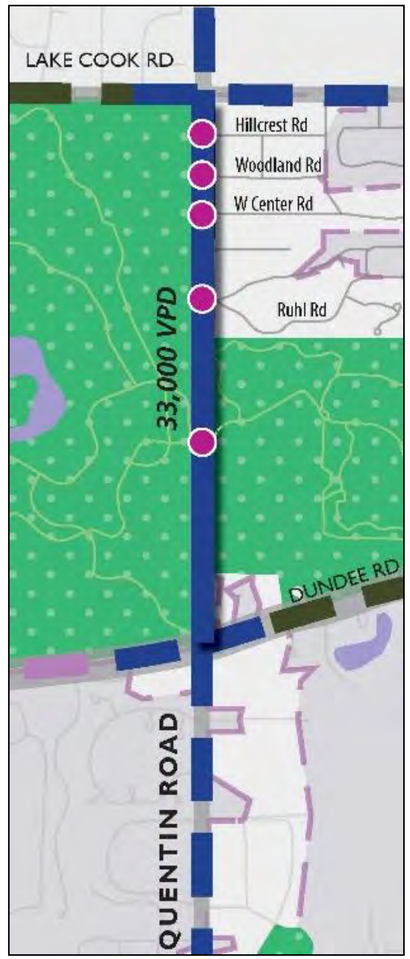
Alternative 5



Four Lanes on Quentin Rd with Left Turn Lanes

- Two lanes in each direction
- Left turn lane at side streets

Alternative 6

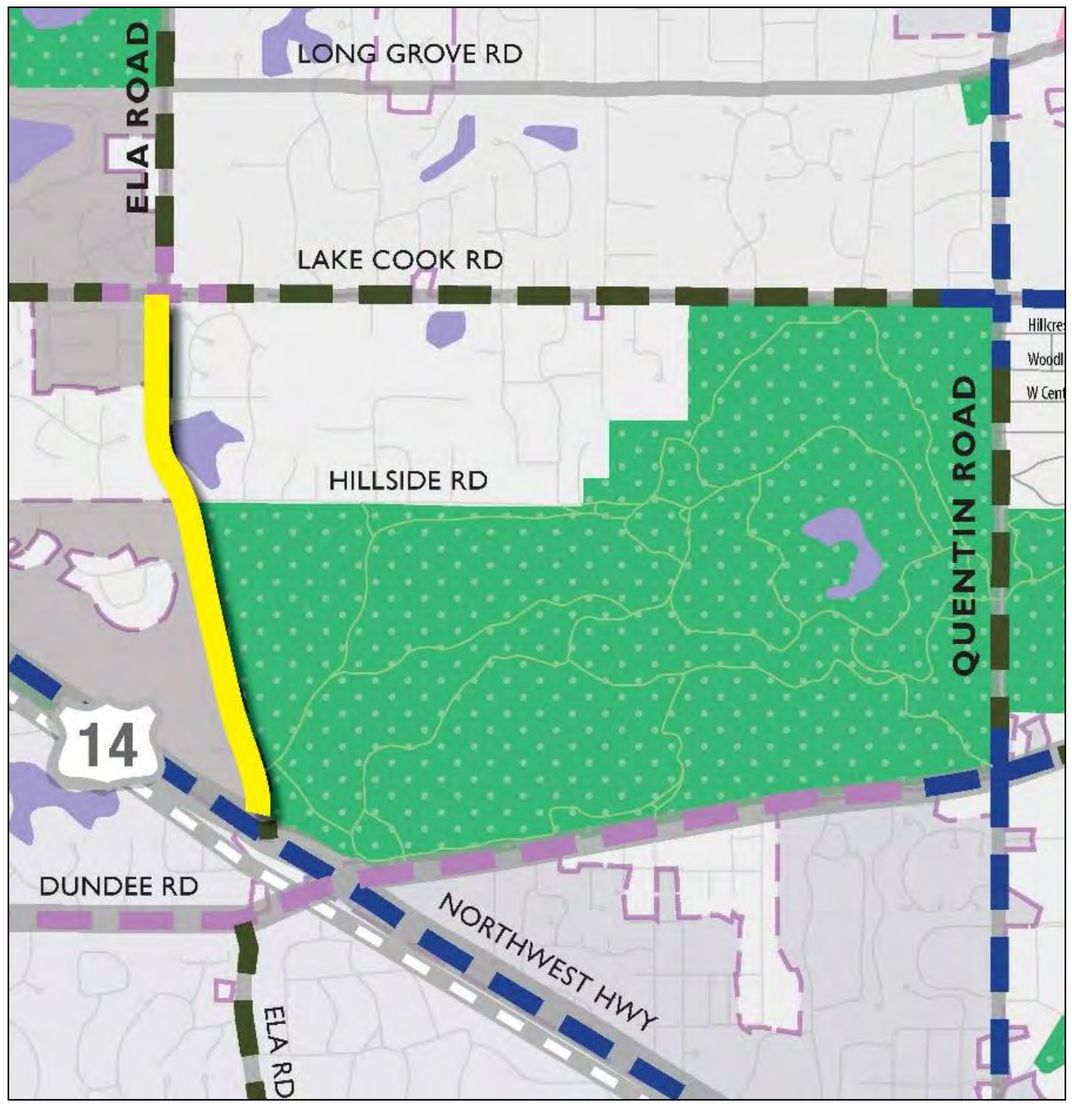


Five Lanes on Quentin Rd

- Two lanes in each direction
- Continuous median with left turn lane at side streets

Evaluation Round 1
Parallel Route Alternatives

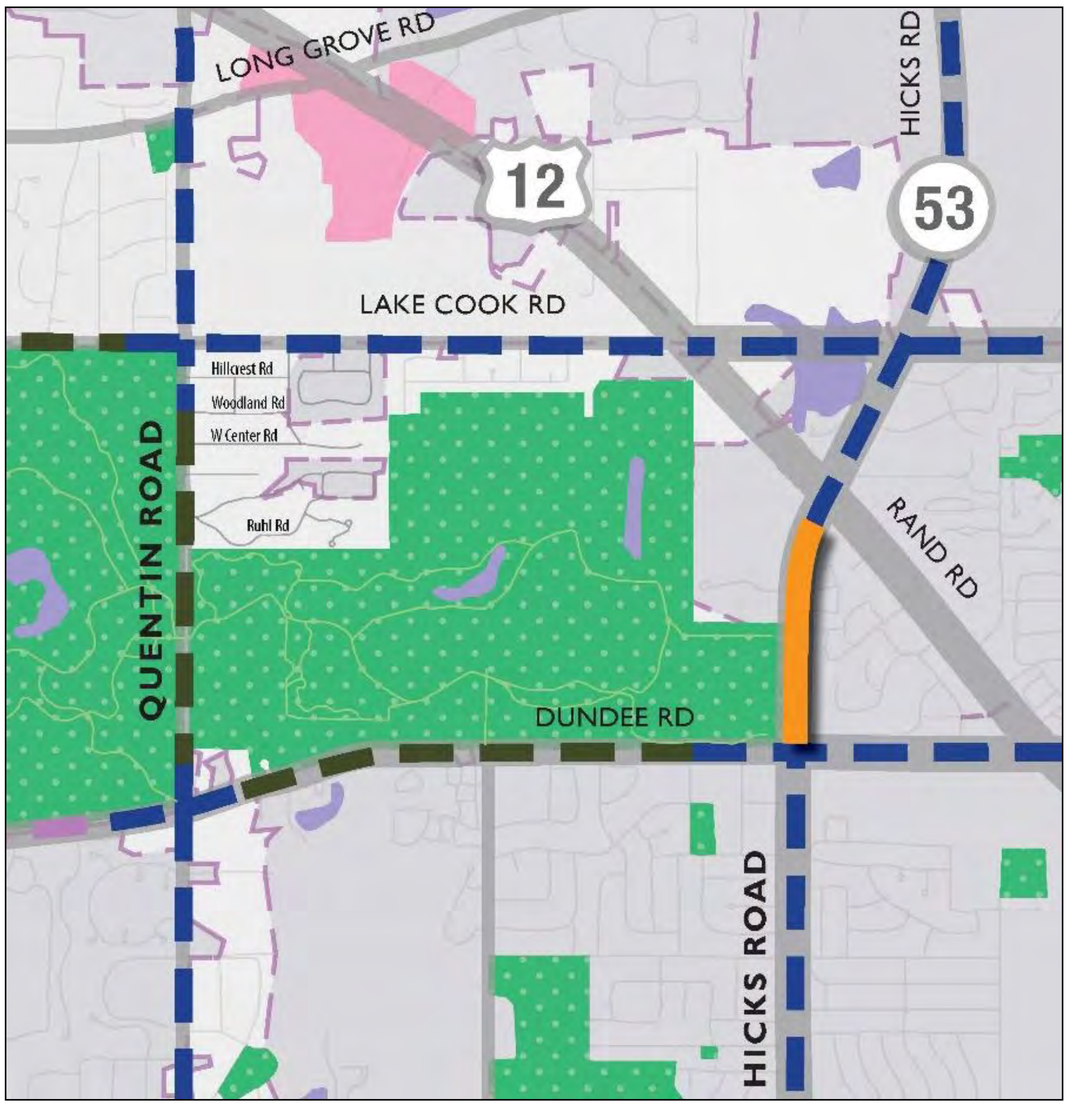
Alternative 7 (Centered)
Alternative 7A (Asymmetric)



Five Lanes on Ela Rd

- Two lanes in each direction
- Continuous median with left turn lane at side streets
- Alt 7A widens to the west to avoid the Deer Grove Forest Preserve

Alternative 8 (Centered)
Alternative 8A (Asymmetric)



Seven Lanes on Hicks Rd

- Three lanes in each direction
- Continuous median with left turn lane at side streets
- Alt 8A widens to the east to avoid the Deer Grove Forest Preserve

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 1 Results

Alternatives	QUENTIN ROAD ROW WIDTH	PURPOSE AND NEED CRITERIA[1]						ENVIRONMENTAL IMPACTS			
		Facility Condition and Design	Safety		Mobility	System Linkage		Natural Environment			
			Vehicle	Non-motorized		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

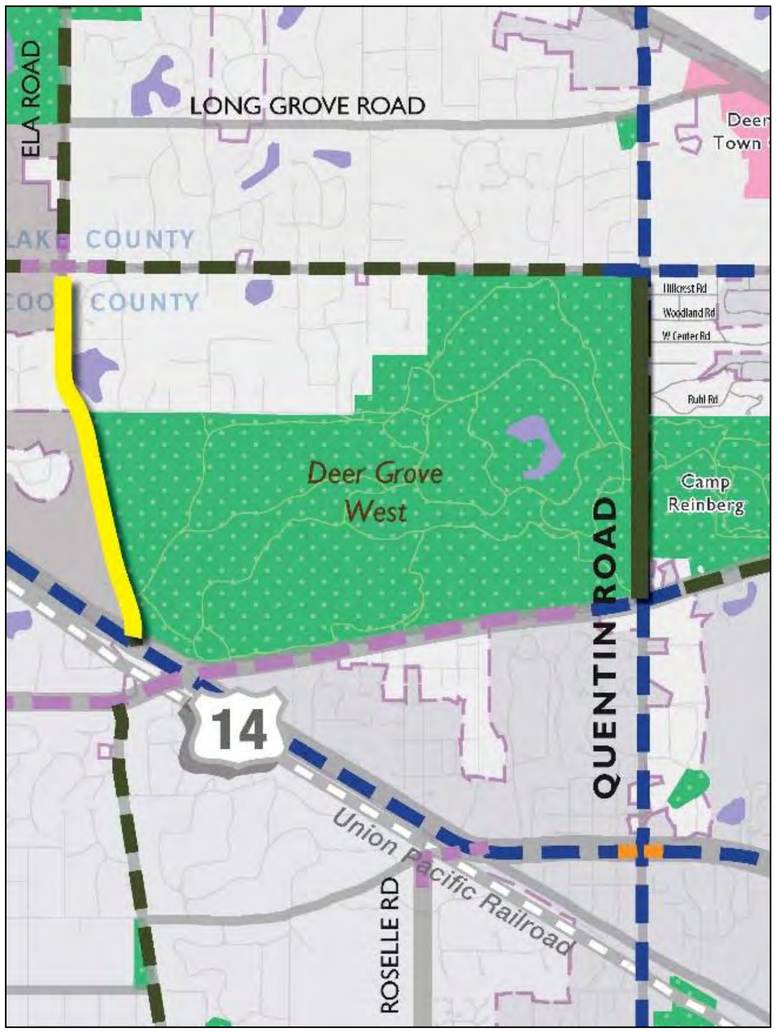
Evaluation Round 2
Alternatives Considered

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

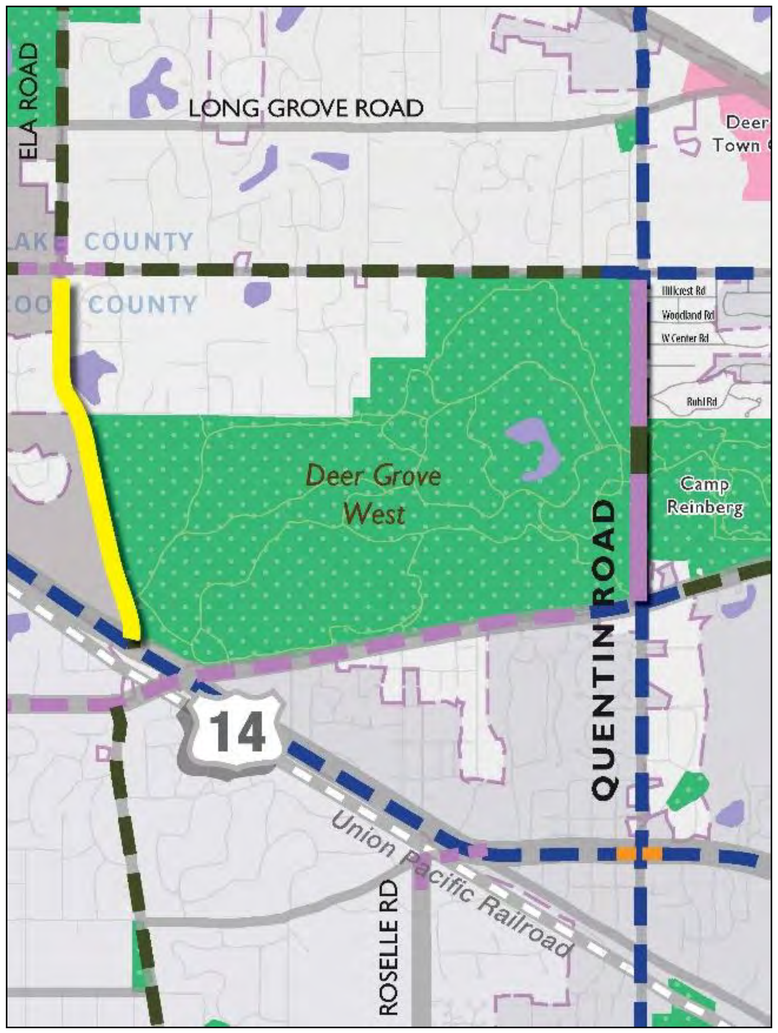
Evaluation Round 2
Combination Alternatives (Ela Road)

Alternative 9
Two-Lane Quentin Road and Four-Lane Ela Road



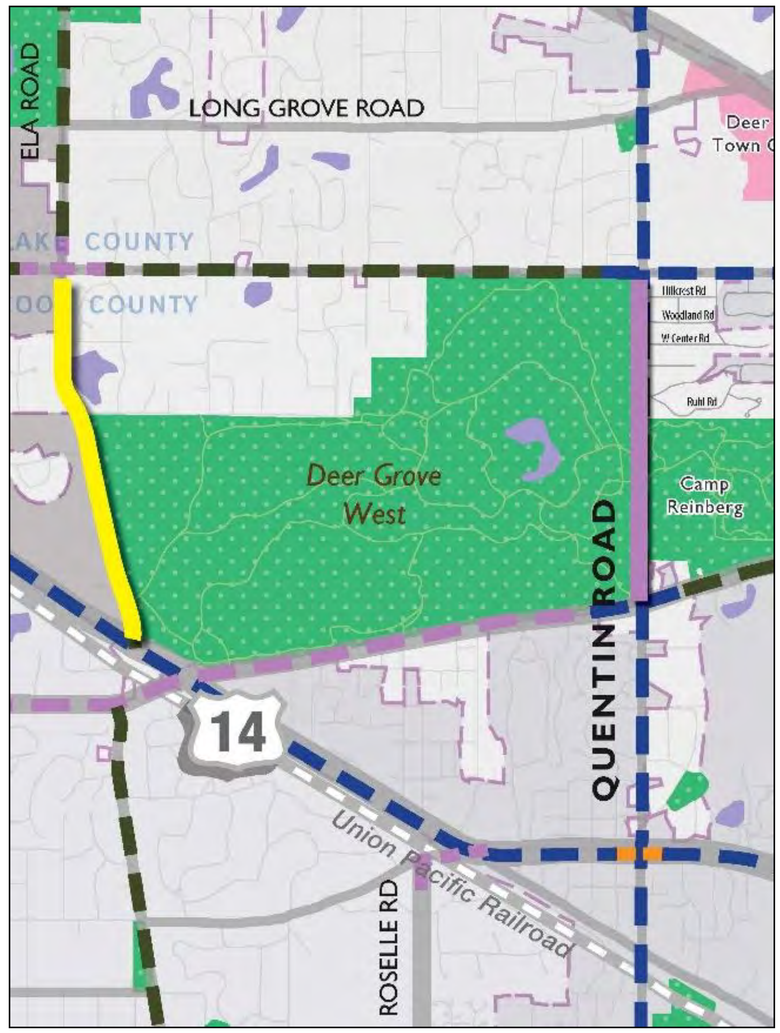
- Combines Alternative 1 and Alternative 7A
- Two-lane Quentin Road with Four-lane Ela Road

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



- Combines Alternative 2 and Alternative 7A
- Two-lane with left turn lanes Quentin Road and Four-lane Ela Road

Alternative 11
Three-Lane Quentin Road and Four-Lane Ela Road



- Combines Alternative 3 and Alternative 7A
- Three-lane Quentin Road with Four-lane Ela Road

Evaluation Round 2
Combination Alternatives (Hicks Road)

Alternative 12
Two-Lane Quentin Road and Six-Lane Hicks Road

- Combines Alternative 1 and Alternative 8A
- Two-lane Quentin Road with Six-lane Hicks Road

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

- Combines Alternative 2 and Alternative 8A
- Two-lane with left turn lanes Quentin Road and Six-lane Hicks Road

Alternative 14
Three-Lane Quentin Road and Six-Lane Hicks Road

- Combines Alternative 3 and Alternative 8A
- Three-lane Quentin Road with Six-lane Hicks Road

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:

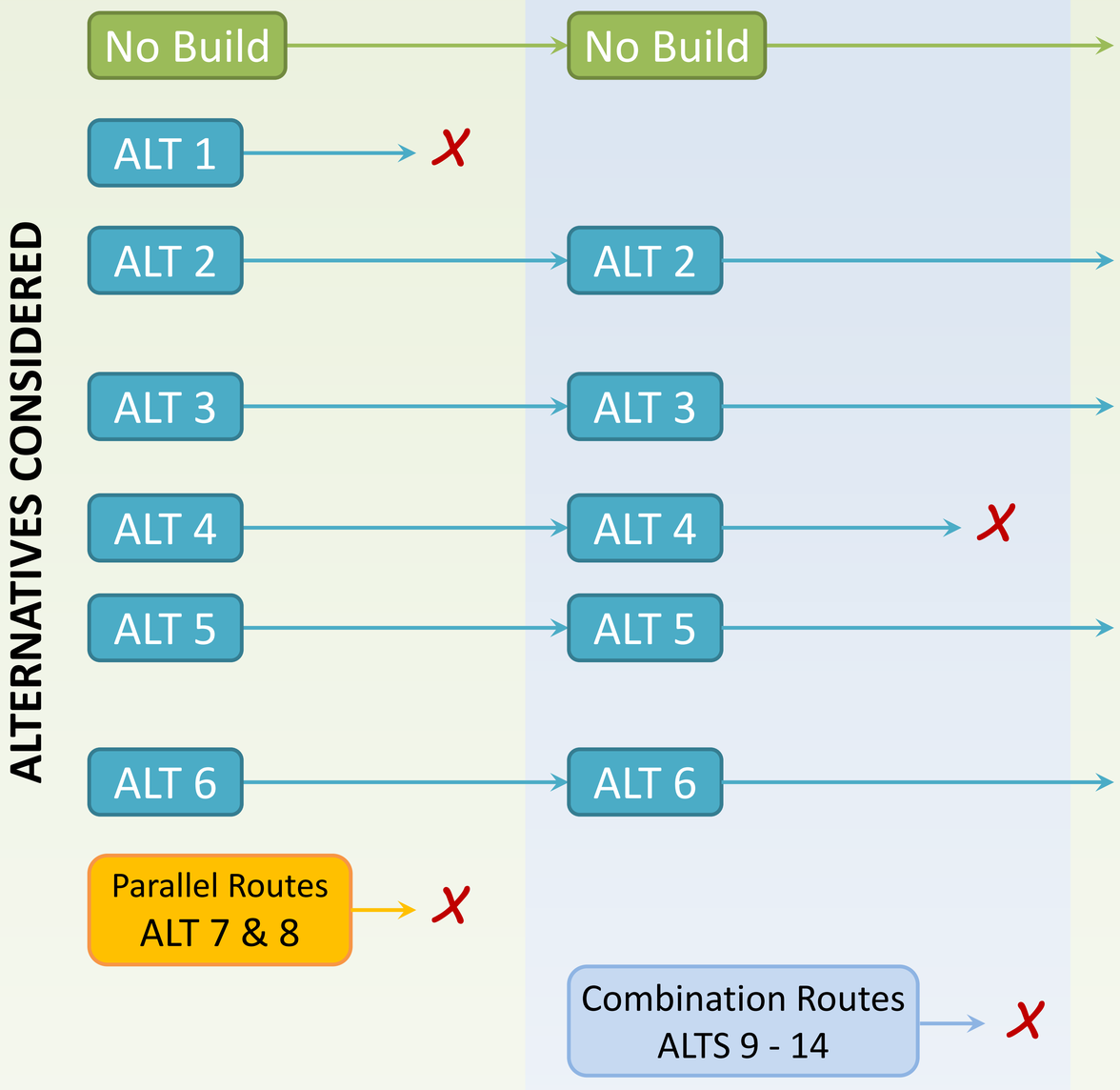
1. Purpose and Need criteria are only rated as Best, Average, or Relatively Lowest Performance.
2. Parallel Route Alternatives considered for evaluation as combination alternatives were those which were shifted away from the forest preserve (Alternatives 7a and 8a) to minimize/avoid impacts to the forest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

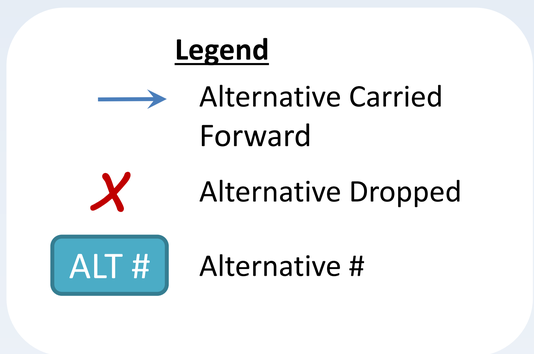
LEGEND

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

Evaluation Round 2 Flowchart

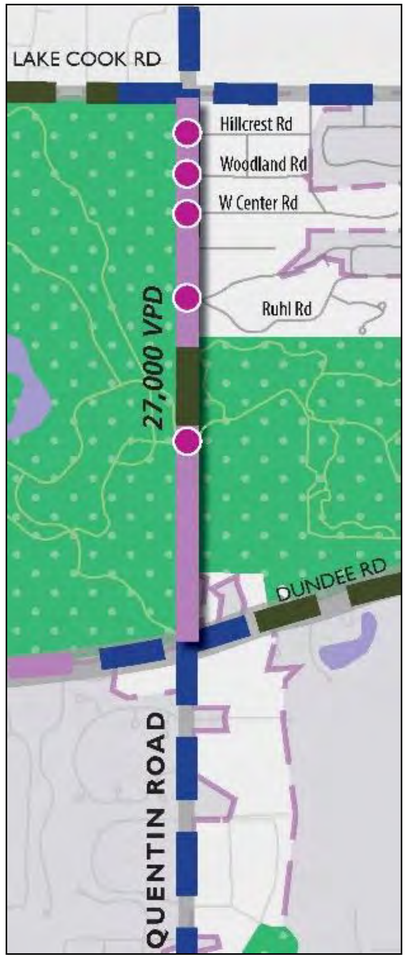
Evaluation Round 1: Purpose and Need Screening	Evaluation Round 2: Refined Purpose and Need Screening	Evaluation Round 3: Performance and Impacts Evaluation	Evaluation Round 4: Refined Performance and Impacts Evaluation





Evaluation Round 3
Quentin Road Alternatives

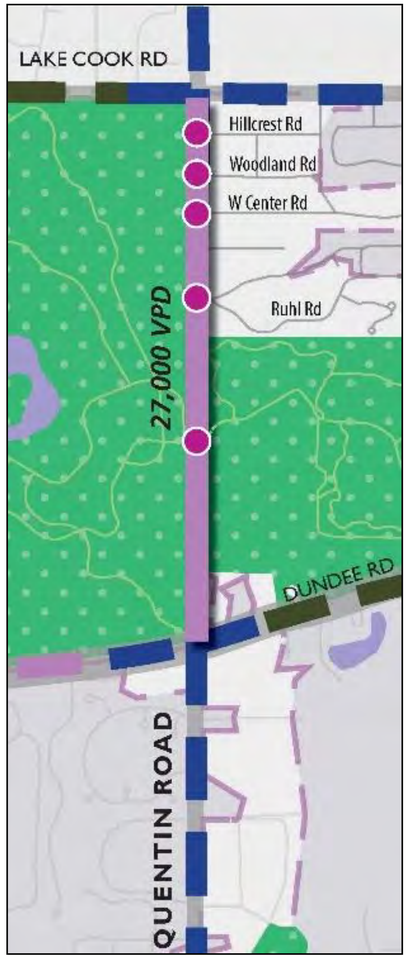
Alternative 2 (A-D)



Two Lanes on Quentin Rd with Left Turn Lanes

- One lane in each direction
- Left turn lane at side streets

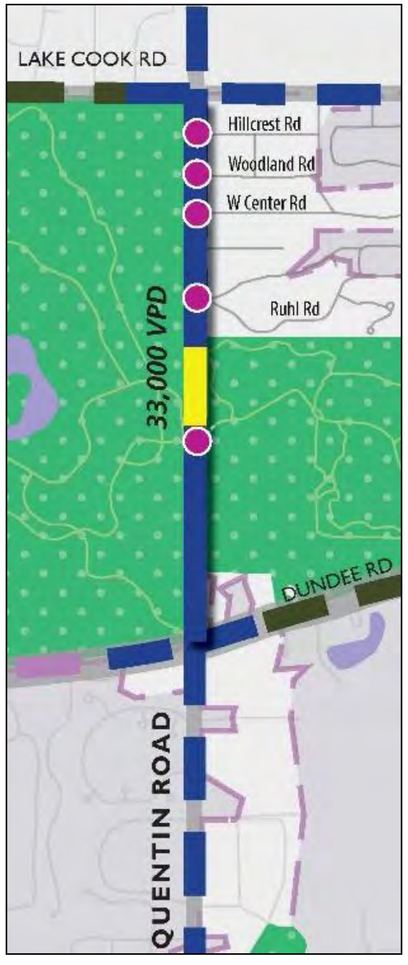
Alternative 3 (A-D)



Three Lanes on Quentin Rd

- One lane in each direction
- Continuous median with left turn lane at side streets

Alternative 5 (A-D)



Four Lanes on Quentin Rd with Left Turn Lanes

- Two lanes in each direction
- Left turn lane at side streets

Alternative 6 (A-D)

Five Lanes on Quentin Rd

- Two lanes in each direction
- Continuous median with left turn lane at side streets

Sub Alternative Descriptions

A – 12’ lanes with curb and gutter

B – 12’ lanes with shoulders

C – 11’ lanes with curb and gutter

D – 11’ lanes with shoulders

Evaluation Round 3
Alternatives Considered

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

- Sub Alternative Descriptions
  - A - 12’ lanes with curb and gutter
  - B - 12’ lanes with shoulders
  - C - 11’ lanes with curb and gutter
  - D - 11’ lanes with shoulders

Evaluation Round 3 Criteria

- Improve Facility Condition and Design:
  - (Same as Evaluation Rounds 1 & 2)
- Improve Safety for Vehicles:
  - (Same as Evaluation Rounds 1 & 2)
- Improve Safety for Non-motorized Traffic:
  - (Same as Evaluation Rounds 1 & 2)
- Improve Mobility:
  - (Same as Evaluation Rounds 1 & 2)
- Enhance System Linkage for Vehicles:
  - (Same as Evaluation Rounds 1 & 2)
- Enhance System Linkage for Non-motorized Traffic:
  - (Same as Evaluation Rounds 1 & 2)
- Effect on the Natural Environment:
  - Property impacts
    - FPCC Property and Non-FPCC property
  - Tree removal
  - Direct impacts to wetlands
    - All wetlands
    - High-quality wetlands (Floristic Quality Index > 20)
  - Floodplain impacts
- Environmental Components
  - Noise levels
  - Water quality
  - Detention

Evaluation Round 3 Results

Alternatives	PURPOSE AND NEED CRITERIA						DESIGN INFORMATION		NATURAL ENVIRONMENT								ENVIRONMENTAL COMPONENTS		
	Facility Condition and Design	Safety		Mobility	System Linkage		Cross Section	ROW Width[1]	Property Acquisition		Tree Removal (Each)	Impacts to Wetlands		Impacts to Floodplain (Acres)			Noise Level[2] (dBA)	Water Quality[3]	Detention[4]
		Vehicle	Non-motorized		Vehicle	Non-motorized			FPCC Property (Acres)	Non-FPCC Property (Acres)		Total (Acres)	High-Quality FQI > 20 (Acres)						
No-Build								66' - 83'									62		
Quentin Road																			
2 - Two-lanes with left turn lanes[5]							2A - 12' C&G	90' - 100'		2.6		0.5		954		1.20		0.68		0.09	63		
							2B - 12' Shoulder	129' - 139'		5.9		1.4		1,682		2.24		1.34		0.45	63		
							2C - 11' C&G	90' - 96'		2.3		0.4		885		1.08		0.61		0.07	63		
							2D - 11' Shoulder	129' - 136'		5.6		1.3		1,626		2.14		1.26		0.40	63		
3 - Three lanes[5]							3A - 12' C&G	100'		2.9		0.5		1,066		1.34		0.76		0.10	63		
							3B - 12' Shoulder	139'		6.2		1.4		1,769		2.36		1.40		0.47	63		
							3C - 11' C&G	96'		2.6		0.4		1,003		1.23		0.69		0.08	63		
							3D - 11' Shoulder	136'		5.9		1.3		1,715		2.25		1.33		0.42	63		
5 - Four lanes with left turn lanes							5A - 12' C&G	110' - 120'		4.4		1.0		1,354		1.76		1.02		0.25	64		
							5B - 12' Shoulder	155' - 163'		8.0		2.0		2,067		2.85		1.75		0.77	64		
							5C - 11' C&G	108' - 114'		3.9		0.8		1,229		1.60		0.91		0.20	64		
							5D - 11' Shoulder	151' - 157'		7.5		1.8		1,965		2.71		1.65		0.68	64		
6 - Five lanes							6A - 12' C&G	120'		4.9		1.2		1,508		1.96		1.13		0.28	64		
							6B - 12' Shoulder	163'		8.5		2.2		2,196		3.03		1.86		0.81	64		
							6C - 11' C&G	114'		4.4		1.1		1,387		1.80		1.03		0.22	64		
							6D - 11' Shoulder	157'		8.0		2.1		2,096		2.89		1.76		0.73	64		

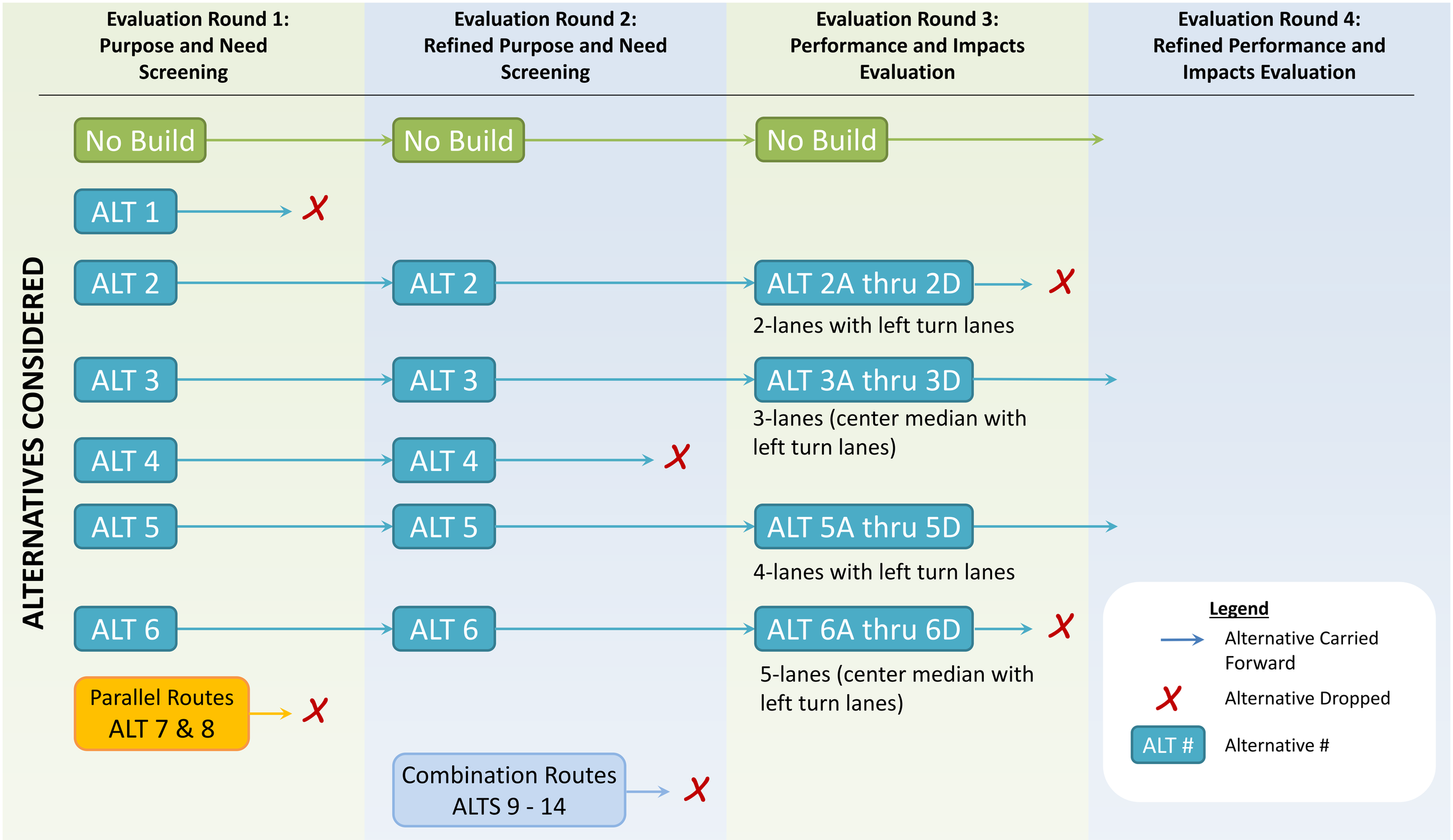
Notes:

1. Right-of-way width is based on a typical cross section outside of the curb & gutter or shoulder.
2. Preliminary predicted noise levels are for Camp Reinberg. Per the IDOT *Traffic Noise Assessment Manual; June 2011* , "A change of 3 dBA is barely perceivable change in noise.".
3. Shoulder sections provide a greater water quality benefit than those with curb and gutter, while 3-lane sections require less water quality measures than those with 5 lanes.
4. Detention performance is related to the proposed roadway footprint and the volume of stormwater runoff that would need to be detained due to the increase in impervious area.
5. Alternative does not fully meet the project Purpose and Need.

LEGEND

- Best Performance
- Good Performance
- Average Performance
- Poor Performance
- Relatively Lowest Performance
- No discernable difference between alternatives

Evaluation Round 3 Flowchart



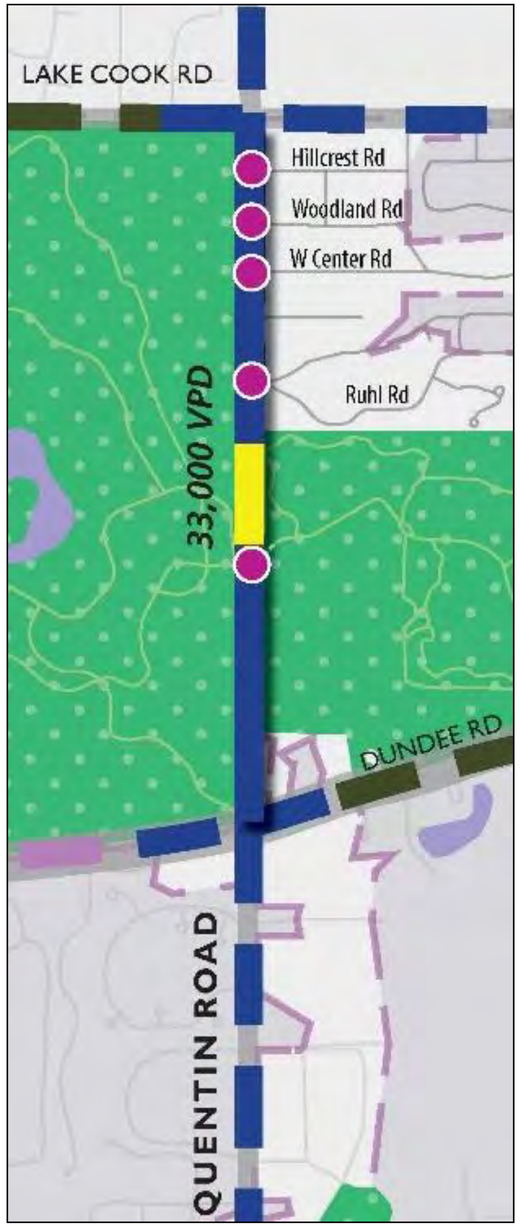
Evaluation Round 4
Quentin Road Alternatives

Alternative 3C

Three Lanes on Quentin Rd

- One lane in each direction
- Continuous median with left turn lane at side streets
- 11’ lanes with curb and gutter

Alternative 5C



Four Lanes on Quentin Rd with Left Turn Lanes

- Two lanes in each direction
- Left turn lane at side streets
- 11’ lanes with curb and gutter

Evaluation Round 4 Criteria

- Purpose and Need Criteria
  - Same as Evaluation Rounds 1, 2 & 3:
    - Improve Facility Condition and Design
    - Improve Mobility
    - Enhance System Linkage for Vehicles
    - Enhance System Linkage for Non-motorized Traffic
  - Highway Safety Manual Analysis:
    - Improve Safety for Vehicles
    - Improve Safety for Non-motorized Traffic:
- Environment Assessment Criteria:
  - Property acquisition
    - FPCC Property - Temporary and Permanent Easement
    - Non-FPCC Property - Temporary Easement and Proposed Right-of-Way
  - Tree removal
    - Broken down be FPCC Index-value (value ranges from 0 to 1)
    - Dead/invasive, low, moderate, high, highest quality
  - Direct impacts to wetlands
    - High-quality (Floristic Quality Index (FQI) > 20 of C-value >3.5)
    - Moderate quality (10 < FQI < 20)
    - Low quality (FQI < 10)
- Environment Assessment Criteria (continued):
  - Direct impacts to floodways and floodplain
    - Fill within floodway
    - Fill within floodplain
  - Environmental Components
    - Preliminary predicted noise levels at Camp Reinberg
    - Salt Splash and Spray
    - Chlorides – Arlington Heights Branch of Salt Creek and Unnamed Tributary to Buffalo Creek
    - Metals (Copper, Lead & Zinc) – Arlington Heights Branch of Salt Creek and Unnamed Tributary to Buffalo Creek
    - Total Suspended Solids – Arlington Heights Branch of Salt Creek and Unnamed Tributary to Buffalo Creek

Evaluation Round 4 Results

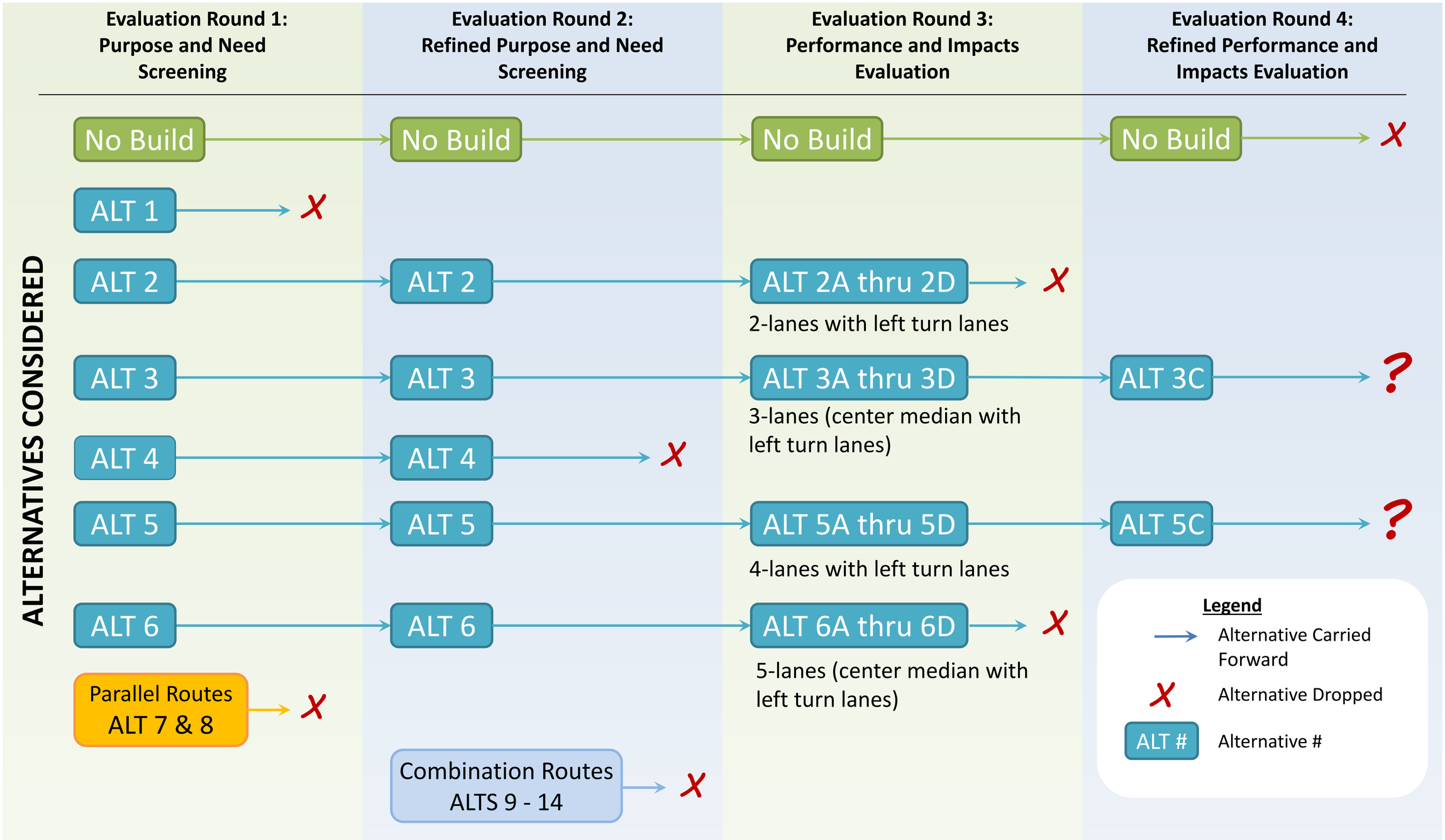
CRITERIA/IMPACTS	ALTERNATIVES			
	3C - Three 11' lanes with curb and gutter		5C - Four 11' lanes with left turn lanes and curb and gutter	
	Open Detention	Closed Detention	Open Detention	Closed Detention
PURPOSE AND NEED CRITERIA				
Fully Meets the Purpose and Need[1]				
Improve Facility Condition and Design	Yes		Yes	
Safety: Vehicle	Yes		Yes	
Safety: Non-Motorized	Yes		Yes	
Mobility	No		Yes	
System Linkage: Vehicle	No		Yes	
System Linkage: Non-Motorized	Yes		Yes	
ENVIRONMENTAL ASSESSMENT CRITERIA				
Property Acquisition				
FPCC Property (Acres)	7.67	4.72	8.54	6.00
Temporary Easement	3.56	4.03	3.81	4.55
Permanent Easement	4.11	0.69	4.74	1.45
Non-FPCC Property (Acres)	0.98	0.98	1.10	1.10
Temporary Easement	0.69	0.69	0.63	0.63
Right-of-Way	0.29	0.29	0.47	0.47
Trees[2]				
Total (Each)	1,564	1,003	1,813	1,335
Highest Quality (Index = 1)	531	321	643	464
High Quality (Index = 0.75)	269	179	295	219
Moderate Quality (Index = 0.5)	66	39	78	54
Low Quality (Index = 0.20)	90	76	105	91
Dead/Invasive (Index = 0)	608	388	692	507
Wetlands				
Total (Acres)	2.16	1.23	2.36	1.65
High Quality (FQI > 20 or C-value > 3.5)[3]	0.72	0.72	0.93	0.93
Moderate Quality (10 < FQI < 20)	1.14	0.28	1.14	0.46
Low Quality (FQI < 10)	0.29	0.23	0.29	0.26
Floodways / Floodplains				
Total (Acres)	0.48		0.72	
Fill within Floodway	0.33		0.45	
Fill within Floodplain	0.16		0.28	

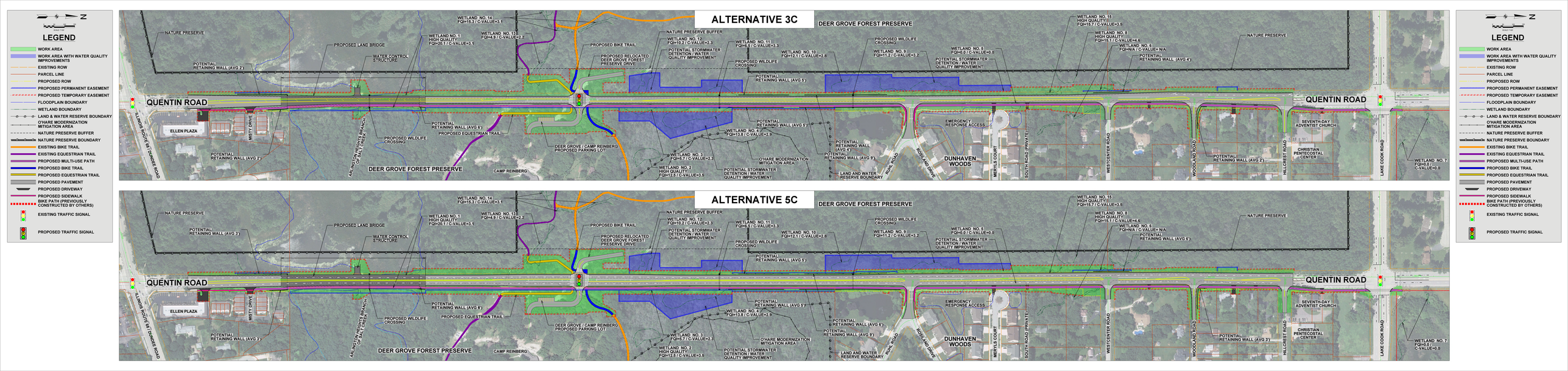
CRITERIA/IMPACTS	Existing Conditions	ALTERNATIVES	
		3C - Three 11' lanes with curb and gutter	5C - Four 11' lanes with left turn lanes and curb and gutter
ENVIRONMENTAL ASSESSMENT CRITERIA (CONTINUED)			
Environmental Components			
Noise Level (dBA)[4]	61	63	64
Salt Splash and Spray[5]	No change	5.5 feet beyond existing condition	13 feet to 16.5 feet beyond existing condition
Chlorides (mg/L)[6]			
Arlington Heights Branch of Salt Creek	29	30	32
Unnamed Tributary to Buffalo Creek	86	108	142
Metals (mg/L)[7]			
Copper			
Arlington Heights Branch of Salt Creek	0.012	0.013	0.015
Unnamed Tributary to Buffalo Creek	0.0047	0.0047	0.0047
Lead			
Arlington Heights Branch of Salt Creek	0.011	0.012	0.013
Unnamed Tributary to Buffalo Creek	0.0076	0.0076	0.0077
Zinc			
Arlington Heights Branch of Salt Creek	0.043	0.048	0.053
Unnamed Tributary to Buffalo Creek	0.0615	0.0615	0.0615
Total Suspended Solids (mg/L)[7]			
Arlington Heights Branch of Salt Creek	55	61	68
Unnamed Tributary to Buffalo Creek	107	106.89	106.68

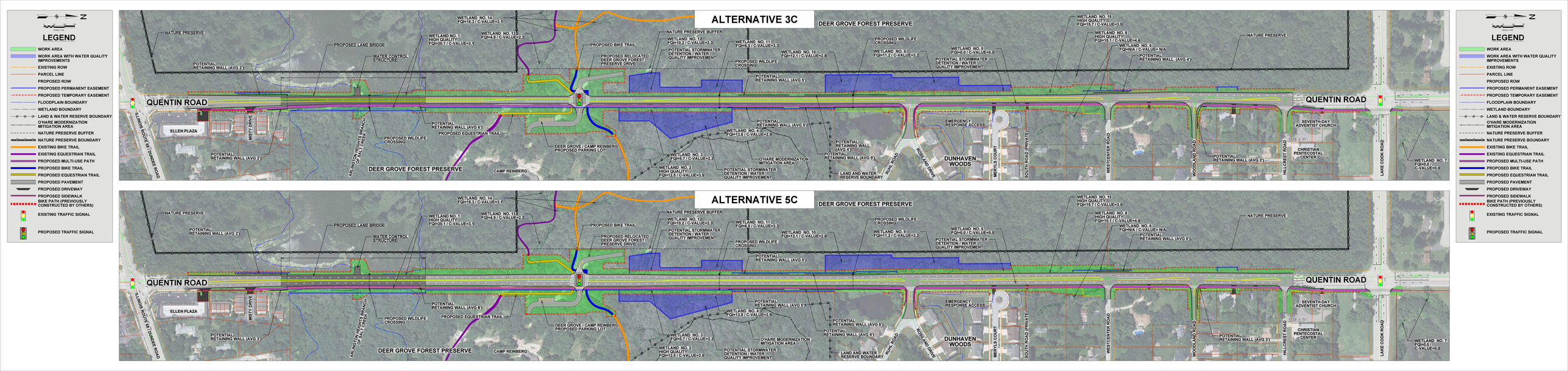
Notes:

1. The No Build Alternative does not fully meet the purpose and need nor provide any water quality/storm water detention volume benefit.
2. Tree quality is based on the index value for each species as identified in the approved FPCC Tree Mitigation Plan as amended.
3. High-quality wetlands as defined by the United States Army Corps of Engineers.
4. Preliminary predicted noise levels are for Camp Reinberg. Per the IDOT Traffic Noise Assessment Manual; June 2011, "A change of 3 dBA is barely perceivable change in noise.".
5. Distance is influenced by a number of factors including velocity of vehicles, roadside slope, drainage, traffic levels, wind/weather conditions, and intensity/frequency of salt application.
6. Levels for both alternatives are under the regulatory requirements for aquatic life.
7. No net change to pollutants with Best Management Practices (BMPs).

Evaluation Round 4 Flowchart




LEGEND
WORK AREA
WORK AREA WITH WATER QUALITY IMPROVEMENTS
EXISTING ROW
PARCEL LINE
PROPOSED ROW
PROPOSED PERMANENT EASEMENT
PROPOSED TEMPORARY EASEMENT
FLOODPLAIN BOUNDARY
WETLAND BOUNDARY
LAND & WATER RESERVE BOUNDARY
O'HARE MODERNIZATION MITIGATION AREA
NATURE PRESERVE BUFFER
NATURE PRESERVE BOUNDARY
EXISTING BIKE TRAIL
EXISTING EQUESTRIAN TRAIL
PROPOSED MULTI-USE PATH
PROPOSED BIKE TRAIL
PROPOSED EQUESTRIAN TRAIL
PROPOSED PAVEMENT
PROPOSED DRIVEWAY
PROPOSED SIDEWALK
BIKE PATH (PREVIOUSLY CONSTRUCTED BY OTHERS)
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL
ALTERNATIVE 3C
DEER GROVE FOREST PRESERVE
NATURE PRESERVE
QUENTIN ROAD
ILLINOIS ROUTE 83 (DIXIE ROAD
ELLEN PLAZA
MISTY DRIVE
POTENTIAL RETAINING WALL (AVG 2')
POTENTIAL RETAINING WALL (AVG 6')
POTENTIAL RETAINING WALL (AVG 3')
WETLAND NO. 14 FQI=15.3 / C-VALUE=3.1
WETLAND NO. 1 HIGH QUALITY FQI=20.1 / C-VALUE=3.1
WETLAND NO. 13 FQI=14.9 / C-VALUE=2.2
PROPOSED LAND BRIDGE
WATER CONTROL STRUCTURE
PROPOSED BIKE TRAIL
PROPOSED RELOCATED DEER GROVE FOREST PRESERVE DRIVE
NATURE PRESERVE BUFFER
WETLAND NO. 12 FQI=10.2 / C-VALUE=2.3
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
WETLAND NO. 11 FQI=8.0 / C-VALUE=3.3
PROPOSED WILDLIFE CROSSING
WETLAND NO. 10 FQI=12.1 / C-VALUE=2.8
WETLAND NO. 9 FQI=11.2 / C-VALUE=3.2
WETLAND NO. 5 FQI=0.0 / C-VALUE=0.0
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
POTENTIAL RETAINING WALL (AVG 5')
WETLAND NO. 15 HIGH QUALITY FQI=18.7 / C-VALUE=3.5
WETLAND NO. 8 HIGH QUALITY FQI=15.1 / C-VALUE=4.6
WETLAND NO. 6 FQI=N/A / C-VALUE = N/A
POTENTIAL RETAINING WALL (AVG 4')
POTENTIAL RETAINING WALL (AVG 6')
WETLAND NO. 7 FQI=0.0 / C-VALUE=0.0
PROPOSED WILDLIFE CROSSING
PROPOSED EQUESTRIAN TRAIL
DEER GROVE / CAMP REINBERG PROPOSED PARKING LOT
CAMP REINBERG
WETLAND NO. 4 FQI=13.8 / C-VALUE=2.9
WETLAND NO. 3 FQI=5.7 / C-VALUE=2.3
WETLAND NO. 2 HIGH QUALITY FQI=12.5 / C-VALUE=3.6
O'HARE MODERNIZATION MITIGATION AREA
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
POTENTIAL RETAINING WALL (AVG 4')
POTENTIAL RETAINING WALL (AVG 9')
LAND AND WATER RESERVE BOUNDARY
RUHL ROAD
ROSELAND DRIVE
DUNHAVEN WOODS
EMERGENCY RESPONSE ACCESS
MERYLS COURT
SOUTH ROAD (PRIVATE)
WESTCENTER ROAD
WOODLAND ROAD
HILLCREST ROAD
SEVENTH-DAY ADVENTIST CHURCH
CHRISTIAN PENTECOSTAL CENTER
LAKE COOK ROAD
WETLAND NO. 7 FQI=0.0 / C-VALUE=0.0
ARLINGTON HEIGHTS BRANCH OF SALT CREEK
POTENTIAL RETAINING WALL (AVG 8')
POTENTIAL RETAINING WALL (AVG 6')
POTENTIAL RETAINING WALL (AVG 3')
ALTERNATIVE 5C
DEER GROVE FOREST PRESERVE
NATURE PRESERVE
QUENTIN ROAD
ILLINOIS ROUTE 83 (DIXIE ROAD
ELLEN PLAZA
MISTY DRIVE
POTENTIAL RETAINING WALL (AVG 3')
POTENTIAL RETAINING WALL (AVG 8')
POTENTIAL RETAINING WALL (AVG 6')
WETLAND NO. 14 FQI=15.3 / C-VALUE=3.1
WETLAND NO. 1 HIGH QUALITY FQI=20.1 / C-VALUE=3.1
WETLAND NO. 13 FQI=14.9 / C-VALUE=2.2
PROPOSED LAND BRIDGE
WATER CONTROL STRUCTURE
PROPOSED BIKE TRAIL
PROPOSED RELOCATED DEER GROVE FOREST PRESERVE DRIVE
NATURE PRESERVE BUFFER
WETLAND NO. 12 FQI=10.2 / C-VALUE=2.3
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
WETLAND NO. 11 FQI=8.0 / C-VALUE=3.3
PROPOSED WILDLIFE CROSSING
WETLAND NO. 10 FQI=12.1 / C-VALUE=2.8
WETLAND NO. 9 FQI=11.2 / C-VALUE=3.2
WETLAND NO. 5 FQI=0.0 / C-VALUE=0.0
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
POTENTIAL RETAINING WALL (AVG 5')
WETLAND NO. 15 HIGH QUALITY FQI=15.7 / C-VALUE=3.5
WETLAND NO. 8 HIGH QUALITY FQI=15.1 / C-VALUE=4.6
WETLAND NO. 6 FQI=N/A / C-VALUE = N/A
POTENTIAL RETAINING WALL (AVG 5')
WETLAND NO. 7 FQI=0.0 / C-VALUE=0.0
PROPOSED WILDLIFE CROSSING
PROPOSED EQUESTRIAN TRAIL
DEER GROVE / CAMP REINBERG PROPOSED PARKING LOT
CAMP REINBERG
WETLAND NO. 4 FQI=13.8 / C-VALUE=2.9
WETLAND NO. 3 FQI=5.7 / C-VALUE=2.3
WETLAND NO. 2 HIGH QUALITY FQI=12.5 / C-VALUE=3.6
O'HARE MODERNIZATION MITIGATION AREA
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
POTENTIAL RETAINING WALL (AVG 6')
POTENTIAL RETAINING WALL (AVG 9')
LAND AND WATER RESERVE BOUNDARY
RUHL ROAD
ROSELAND DRIVE
DUNHAVEN WOODS
EMERGENCY RESPONSE ACCESS
MERYLS COURT
SOUTH ROAD (PRIVATE)
WESTCENTER ROAD
WOODLAND ROAD
HILLCREST ROAD
SEVENTH-DAY ADVENTIST CHURCH
CHRISTIAN PENTECOSTAL CENTER
LAKE COOK ROAD
WETLAND NO. 7 FQI=0.0 / C-VALUE=0.0
ARLINGTON HEIGHTS BRANCH OF SALT CREEK
POTENTIAL RETAINING WALL (AVG 3')
LEGEND
WORK AREA
WORK AREA WITH WATER QUALITY IMPROVEMENTS
EXISTING ROW
PARCEL LINE
PROPOSED ROW
PROPOSED PERMANENT EASEMENT
PROPOSED TEMPORARY EASEMENT
FLOODPLAIN BOUNDARY
WETLAND BOUNDARY
LAND & WATER RESERVE BOUNDARY
O'HARE MODERNIZATION MITIGATION AREA
NATURE PRESERVE BUFFER
NATURE PRESERVE BOUNDARY
EXISTING BIKE TRAIL
EXISTING EQUESTRIAN TRAIL
PROPOSED MULTI-USE PATH
PROPOSED BIKE TRAIL
PROPOSED EQUESTRIAN TRAIL
PROPOSED PAVEMENT
PROPOSED DRIVEWAY
PROPOSED SIDEWALK
BIKE PATH (PREVIOUSLY CONSTRUCTED BY OTHERS)
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL


LEGEND
WORK AREA
WORK AREA WITH WATER QUALITY IMPROVEMENTS
EXISTING ROW
PARCEL LINE
PROPOSED ROW
PROPOSED PERMANENT EASEMENT
PROPOSED TEMPORARY EASEMENT
FLOODPLAIN BOUNDARY
WETLAND BOUNDARY
LAND & WATER RESERVE BOUNDARY
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BIKE PATH (PREVIOUSLY CONSTRUCTED BY OTHERS)
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL
ALTERNATIVE 3C
DEER GROVE FOREST PRESERVE
NATURE PRESERVE
WETLAND NO. 14 FQI=15.3 / C-VALUE=3.1
WETLAND NO. 1 HIGH QUALITY FQI=20.1 / C-VALUE=3.1
WETLAND NO. 13 FQI=4.9 / C-VALUE=2.2
PROPOSED LAND BRIDGE
WATER CONTROL STRUCTURE
POTENTIAL RETAINING WALL (AVG 2')
PROPOSED BIKE TRAIL
PROPOSED RELOCATED DEER GROVE FOREST PRESERVE DRIVE
NATURE PRESERVE BUFFER
WETLAND NO. 12 FQI=15.2 / C-VALUE=2.3
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
WETLAND NO. 11 FQI=8.0 / C-VALUE=3.3
PROPOSED WILDLIFE CROSSING
WETLAND NO. 10 FQI=12.1 / C-VALUE=2.8
WETLAND NO. 9 FQI=11.2 / C-VALUE=3.2
WETLAND NO. 5 FQI=0.0 / C-VALUE=0.0
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
POTENTIAL RETAINING WALL (AVG 5')
WETLAND NO. 15 HIGH QUALITY FQI=18.7 / C-VALUE=3.5
WETLAND NO. 8 HIGH QUALITY FQI=15.1 / C-VALUE=4.6
WETLAND NO. 6 FQI=N/A / C-VALUE= N/A
POTENTIAL RETAINING WALL (AVG 4')
NATURE PRESERVE
QUENTIN ROAD
ILLINOIS ROUTE 68 (DUNDEE ROAD)
ELLEN PLAZA
MISTY DRIVE
POTENTIAL RETAINING WALL (AVG 6')
POTENTIAL RETAINING WALL (AVG 2')
PROPOSED WILDLIFE CROSSING
PROPOSED EQUESTRIAN TRAIL
ARLINGTON HEIGHTS BRANCH OF SALT CREEK
DEER GROVE / CAMP REINBERG PROPOSED PARKING LOT
CAMP REINBERG
DEER GROVE FOREST PRESERVE
WETLAND NO. 4 FQI=13.8 / C-VALUE=2.9
WETLAND NO. 3 FQI=5.7 / C-VALUE=2.3
WETLAND NO. 2 HIGH QUALITY FQI=12.5 / C-VALUE=3.6
O'HARE MODERNIZATION MITIGATION AREA
POTENTIAL STORMWATER DETENTION / WATER QUALITY IMPROVEMENT
POTENTIAL RETAINING WALL (AVG 4')
POTENTIAL RETAINING WALL (AVG 9')
LAND AND WATER RESERVE BOUNDARY
RUHL ROAD
ROSELAND DRIVE
DUNHAVEN WOODS
EMERGENCY RESPONSE ACCESS
MERYLS COURT
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WESTCHESTER ROAD
WOODLAND ROAD
POTENTIAL RETAINING WALL (AVG 2')
HILLCREST ROAD
SEVENTH-DAY ADVENTIST CHURCH
CHRISTIAN PENTECOSTAL CENTER
LAKE COOK ROAD
WETLAND NO. 7 FQI=0.0 / C-VALUE=0.0
ALTERNATIVE 5C
POTENTIAL RETAINING WALL (AVG 3')
POTENTIAL RETAINING WALL (AVG 8')
POTENTIAL RETAINING WALL (AVG 3')

Alternative 3C
Bird's-eye View

Alternative 3C
Street Level View

Alternative 5C
Bird's-eye View

Alternative 5C
Street Level View

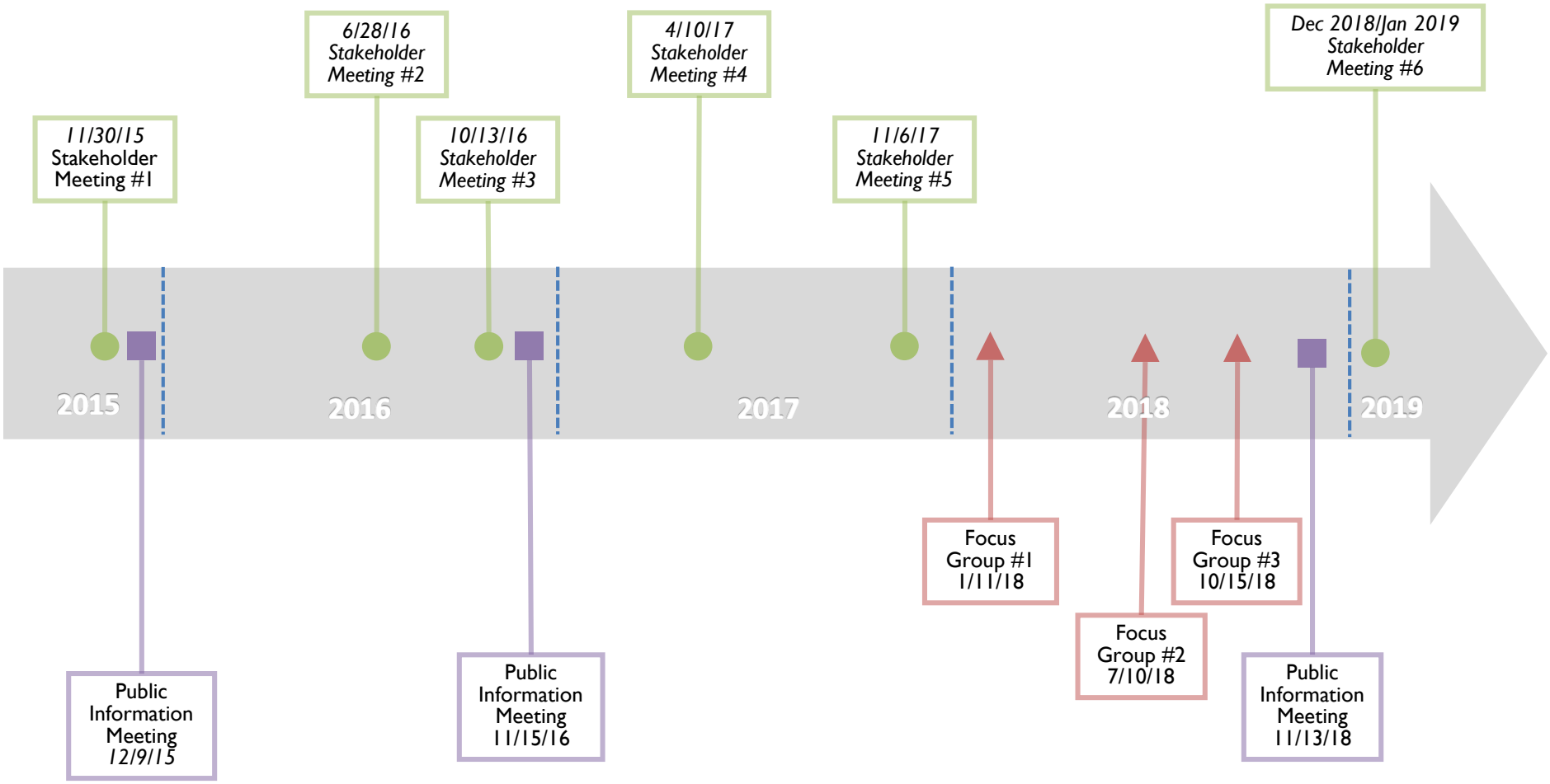
Environmental Stakeholder Coordination

Deer Grove Forest Preserve is a special and unique place. Given its sensitivity and resources, a series of meetings was held with the environmental stakeholders, both as a large group to discuss overall concerns, and as a series of smaller focus groups to discuss specific topics.

Environmental Stakeholder Group Members

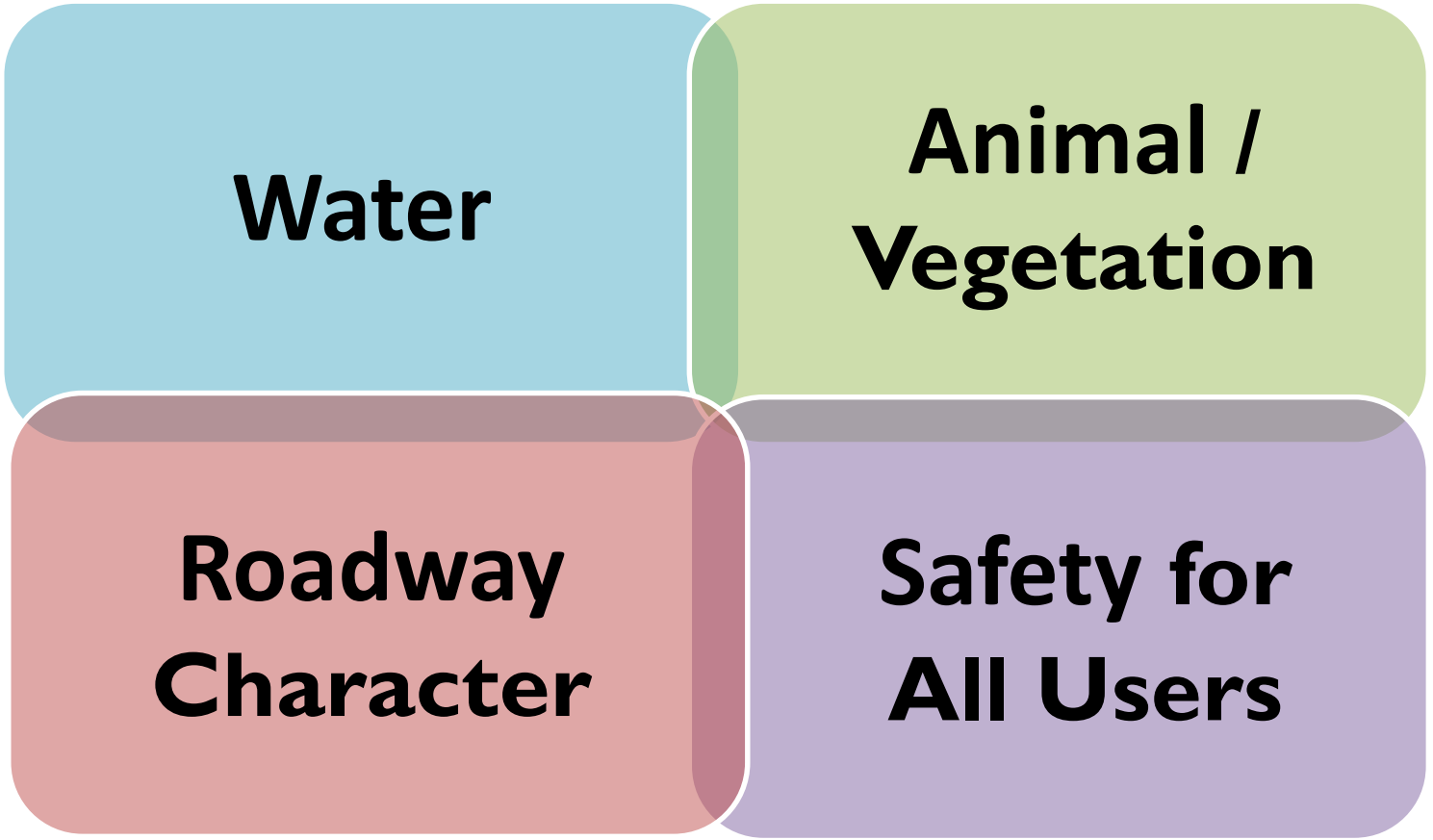
- Forest Preserves of Cook County
- Friends of the Forest Preserve
- Openlands
- Build Quentin Right
- Deer Grove Natural Areas Volunteers
- Cook County Department of Transportation and Highways

Environmental Stakeholder Coordination Schedule



Focus Groups

Small groups of environmental stakeholder members were formed to provide open and transparent dialogue on important topics and share data and insight between various stakeholders.



Focus Groups

Small groups of environmental stakeholder members were formed to provide open and transparent dialogue on important topics and share data and insight between various stakeholders.

Water

Discussion Areas

- Salt
- Drainage Patterns & Outfalls
- Impacts on Well & Septic
- Detention
- Wetlands
- Water Quality & Quantity
- Stormwater Management
- Mitigation & Avoidance

Recommendations

- ✓ Salt run-off, splash, and spray are important environmental consideration to water quality as well as sensitive animals and plants.
- ✓ CCDOTH is considering Best Management Practices (BMPs) to remove pollutants such as metals and temporary suspended solids.
- ✓ Drainage patterns and outfalls will stay the same as today and detention will be provided to keep the existing flow rate leaving Quentin Road.
- ✓ Wells and septic will not be impacted.

Focus Groups

Small groups of environmental stakeholder members were formed to provide open and transparent dialogue on important topics and share data and insight between various stakeholders.

Animals / Vegetation

Discussion Areas

- Salt
- Mitigation & Avoidance
- Trees
- Retaining Wall Impacts to Wildlife & Habitat
- Noise
- Wildlife Crossings
- Light

Recommendations

- ✓ Salt run-off, splash, and spray are important environmental consideration to water quality as well as sensitive animals and plants.
- ✓ CCDOTH is considering Best Management Practices (BMPs) to remove pollutants such as metals and temporary suspended solids.
- ✓ Lower the roadway speed limit to 40mph to reduce salt spray and splash.

Focus Groups

Small groups of environmental stakeholder members were formed to provide open and transparent dialogue on important topics and share data and insight between various stakeholders.

Roadway Character

Discussion Areas

- Aesthetics
- Sense of Place
- Noise
- Temporary & Permanent Impacts
- Landscape
- Retaining Walls
- Footprint & ROW

Recommendations

- ✓ Provide separation between the roadway and multi-use path.
- ✓ Provide shorter and aesthetically pleasing retaining wall designs that fit within the surrounding area.
- ✓ Fix sight lines but don't eliminate hills and valleys of the roadway.

Focus Groups

Small groups of environmental stakeholder members were formed to provide open and transparent dialogue on important topics and share data and insight between various stakeholders.

Safety for all Users

Discussion Areas	Recommendations
▸ Paths & Sidewalks ▸ Left Turn Lanes ▸ Line of Sight ▸ Crossings ▸ Crashes & Speed ▸ Roadway Profile	✓ Reduce the speed limit to 40 mph. ✓ Provide separate left turn lanes at intersecting streets (except at Hillcrest Road) and at the Deer Grove entrance. ✓ Provide a multi-use path the entire length of the project. ✓ Provide marked pedestrian crossings across all intersecting roadways. ✓ Improve the line of sight.

LEGEND

- REFERENCE LINE AND STATIONING
- RIGHT OF WAY LINE
- USGS DRAINAGE DIVIDE
- SALT CREEK WATERSHED
- BUFFALO CREEK WATERSHED
- INTERPRETED DRAINAGE AREA
- FLOODPLAIN BOUNDARY
- FLOODWAY BOUNDARY
- WETLANDS
- SHALLOW CONC./ GUTTER FLOW
- SWALE
- DITCH
- OUTLET
- OUTLET NUMBER
- SHEET FLOW
- OVERFLOW
- CHANNEL
- CULVERT SIZE - TYPE
- STORM SEWER
- SANITARY SEWER
- COMBINED SEWER
- CULVERT END SECTION
- CATCH BASIN
- HEADWALL/ENDWALL
- INLET
- MANHOLE

NOTES:

1. ALL PIPE MATERIALS ARE RCP UNLESS OTHERWISE NOTED.
2. ALL PIPE SIZES ARE 12 INCH DIAMETER UNLESS OTHERWISE NOTED.

LEGEND

- REFERENCE LINE AND STATIONING
- RIGHT OF WAY LINE
- USGS DRAINAGE DIVIDE
- SALT CREEK WATERSHED
- BUFFALO CREEK WATERSHED
- INTERPRETED DRAINAGE AREA
- FLOODPLAIN BOUNDARY
- FLOODWAY BOUNDARY
- WETLANDS
- SHALLOW CONC./ GUTTER FLOW
- SWALE
- DITCH
- OUTLET
- OUTLET NUMBER
- SHEET FLOW
- OVERFLOW
- CHANNEL
- CULVERT SIZE - TYPE
- STORM SEWER
- SANITARY SEWER
- COMBINED SEWER
- CULVERT END SECTION
- CATCH BASIN
- HEADWALL/ENDWALL
- INLET
- MANHOLE

NOTES:

1. ALL PIPE MATERIALS ARE RCP UNLESS OTHERWISE NOTED.
2. ALL PIPE SIZES ARE 12 INCH DIAMETER UNLESS OTHERWISE NOTED.

Water Quality Studies

- Environmental Stakeholder Group and Focus Group requested more studies on water quality
- Goal of the studies were to answer important questions about:
  - Salt
  - Water Quality & Quantity
  - Drainage Patterns & Outfalls
- Quentin Road stretches across two watersheds
  - Arlington Heights Branch of Salt Creek
  - Unnamed Tributary to Buffalo Creek
- Detailed Studies for Chlorides
  - Used USGS Frost Model for chloride analysis
- Detailed Studies for Metals and Total Suspended Solids (TSS)
  - Used FHWA's Driscoll Model for analysis within Arlington Heights Branch of Salt Creek watershed
  - Used USGS Drive Model for analysis within Unnamed Tributary to Buffalo Creek watershed

Salt Spray and Salt Splash

- Studies indicate that 60 to 80 percent of salt runs off with surface runoff, 15 to 35 percent occurs as splash, and up to 3 percent occurs as aerosol spray.
- Salt splash and spray exposure distances vary according to several factors, such as roadway slope, drainage, traffic levels, wind and weather conditions, and the intensity and frequency of salt treatments.
  - Splash is greatest within 45 to 60 feet of edge of pavement.
  - Spray can carry for greater distances as dry deposition.
  - The deposition of salt decreases with distance.

Chloride Analysis - USGS Frost Model

- Developed using multiple and simple linear regression models
- Approved by the IEPA for use in estimating pollutant loading from roadway projects as part of Clean Water Act Section 401 permitting
- Predicted chloride loading contributed by Quentin Road within the project limits for each watershed

Results

	Arlington Heights Branch Salt Creek			UNT to Buffalo Creek		
	Existing	Alternative 3C	Alternative 5C	Existing	Alternative 3C	Alternative 5C
Drainage Area (sq. mi.)	3			0.2		
Lane Miles (mi.)	1.08	1.42	1.93	1.5	2.06	2.91
Salt Applied (tons/mi.)	6.7					
Salt Applied (tons)	7.24	9.51	12.93	10.05	13.8	19.5
Annual Maximum of Daily Mean Chloride Concentrations (mg/L)	**29**	**30**	**32**	**86**	**108**	**142**

Conclusions

- None of the predicted downstream concentrations for proposed conditions were above the water quality standard for chloride (500 mg/L).
- No net increase in chlorides with incorporation of Best Management Practices within the larger Salt Creek and Buffalo Creek watersheds.
- The Department is considering alternatives to reduce salt spray along Quentin Road including the reduction of the speed limit.
- The Department acknowledges that there is a difference in the amount of chloride applied for Alternatives 3C and 5C and has presented the results of analysis in the Draft Water Quality Modeling Report.
- Chloride is just one of many criteria for consideration to evaluate the benefits of Alternatives 3C and 5C.

Metals and Total Suspended Solids Analysis
FHWA Driscoll Model – Arlington Heights Branch of Salt Creek

- The FHWA Driscoll Model is a statistical model
- Model is approved by the IEPA for use in estimating pollutant loading from roadway projects as part of Clean Water Act Section 401 permitting
- Predicted Metal and TSS loading contributed by the segment of Quentin Road within the project limits and Arlington Heights Branch of Salt Creek Watershed

Results

Stream / Driscoll Model Scenario	General Use Water Quality Acute Standard			FHWA DRISCOLL RESULTS			
				Future Once-In-Three-Years Stream Pollutant Concentration Without Post-Construction Stormwater BMPs			
	Copper (mg/L)	Lead (mg/L)	Zinc (mg/L)	Copper (mg/L)	Lead (mg/L)	Zinc (mg/L)	TSS (mg/L)
Existing	0.042	0.21	0.268	0.012	0.011	0.043	55
Alternative 3C	0.042	0.21	0.268	0.013	0.012	0.048	61
Alternative 5C	0.042	0.21	0.268	0.015	0.013	0.053	68

Note: There is no General Use Water Quality Standard for TSS

Conclusions

- None of the predicted downstream concentrations for proposed conditions were above the general use acute water quality standards.
- No net increase in Metals and TSS is anticipated with incorporation of Best Management Practices (see Pollutant Reduction Remaining Coefficient) at right

BMP	Pollutant Reduction Remaining Coefficient			
	Copper (Cu)	Lead (Pb)	Zinc (Zn)	TSS
Basin	0.540	0.330	0.370	0.170
Vegetated Swale	0.540	0.330	0.370	0.200
Stormceptor	0.288	0.432	0.288	0.480

Metals and Total Suspended Solids Analysis
USGS Driver Model – UNT to Buffalo Creek

- The USGS Driver Model is a multiple linear regression analysis
- Model is approved by the IEPA for use in estimating pollutant loading from roadway projects as part of Clean Water Act Section 401 permitting
- Predicted Metal and Total Suspended Solids (TSS) loading contributed by the segment of Quentin Road within the project limits and Unnamed Tributary to Buffalo Creek Watershed

Conclusions

- None of the predicted downstream concentrations for proposed conditions were above the general use acute water quality standards.
- No net increase in Metals and TSS is anticipated with incorporation of Best Management Practices (see Pollutant Reduction Remaining Coefficient).
- Downstream concentrations within Buffalo Creek were predicted by conducting a mass balance of the watershed using the rational method equation

Results

Stream	General Use Water Quality Acute Standard			USGS DRIVER RESULTS Storm Runoff Mean Pollutant Concentration Without Post-Construction Stormwater BMPs			
	Copper (mg/L)	Lead (mg/L)	Zinc (mg/L)	Copper (mg/L)	Lead (mg/L)	Zinc (mg/L)	TSS (mg/L)
Existing	0.042	0.21	0.268	0.019	0.067	0.191	230.08
Alternative 3C	0.042	0.21	0.268	0.019	0.067	0.195	225.18
Alternative 5C	0.042	0.21	0.268	0.019	0.072	0.198	220.61

Note: There is no General Use Water Quality Standard for TSS

BMP	Pollutant Reduction Remaining Coefficient			
	Copper (Cu)	Lead (Pb)	Zinc (Zn)	TSS
Basin	0.540	0.330	0.370	0.170
Vegetated Swale	0.540	0.330	0.370	0.200
Stormceptor	0.288	0.432	0.288	0.480

Parameter	General Use Water Quality Acute Standard	Existing Concentration in Buffalo Creek	RATIONAL METHOD RESULTS Without Post-Construction Stormwater BMPs	
			Alternative 3C	Alternative 5C
Copper, dissolved (mg/L)	0.042	0.0047	0.0047	0.0047
Lead, dissolved (mg/L)	0.21	0.0076	0.0076	0.0077
Zinc, dissolved (mg/L)	0.268	0.0615	0.0615	0.0615
TSS (mg/L)	---	107	106.89	106.68

Study Timeline

2015 2016 2017 2018 2019

Scoping
Solicit public input on issues and concerns the project should address

Purpose & Need
Establish why the project is needed

Alternatives Analysis & Screening

Environmental Studies & Stakeholder Coordination

Draft Environmental Assessment (EA)

Final EA

We Are Here

Public Involvement

- Public Information Meeting #1
- Public Information Meeting #2
- Public Information Meeting #3
- Public Hearing

Next Steps

- Conclude Public Comment Period on November 30th
- Identify the Preferred Alternative
- Prepare the Environmental Assessment (EA)
- Hold a Public Hearing for Comments
- Study Approval