

Eastern Circumferential Road (ECR) - NC49/NCRR Crossing Feasibility Study

May 2010

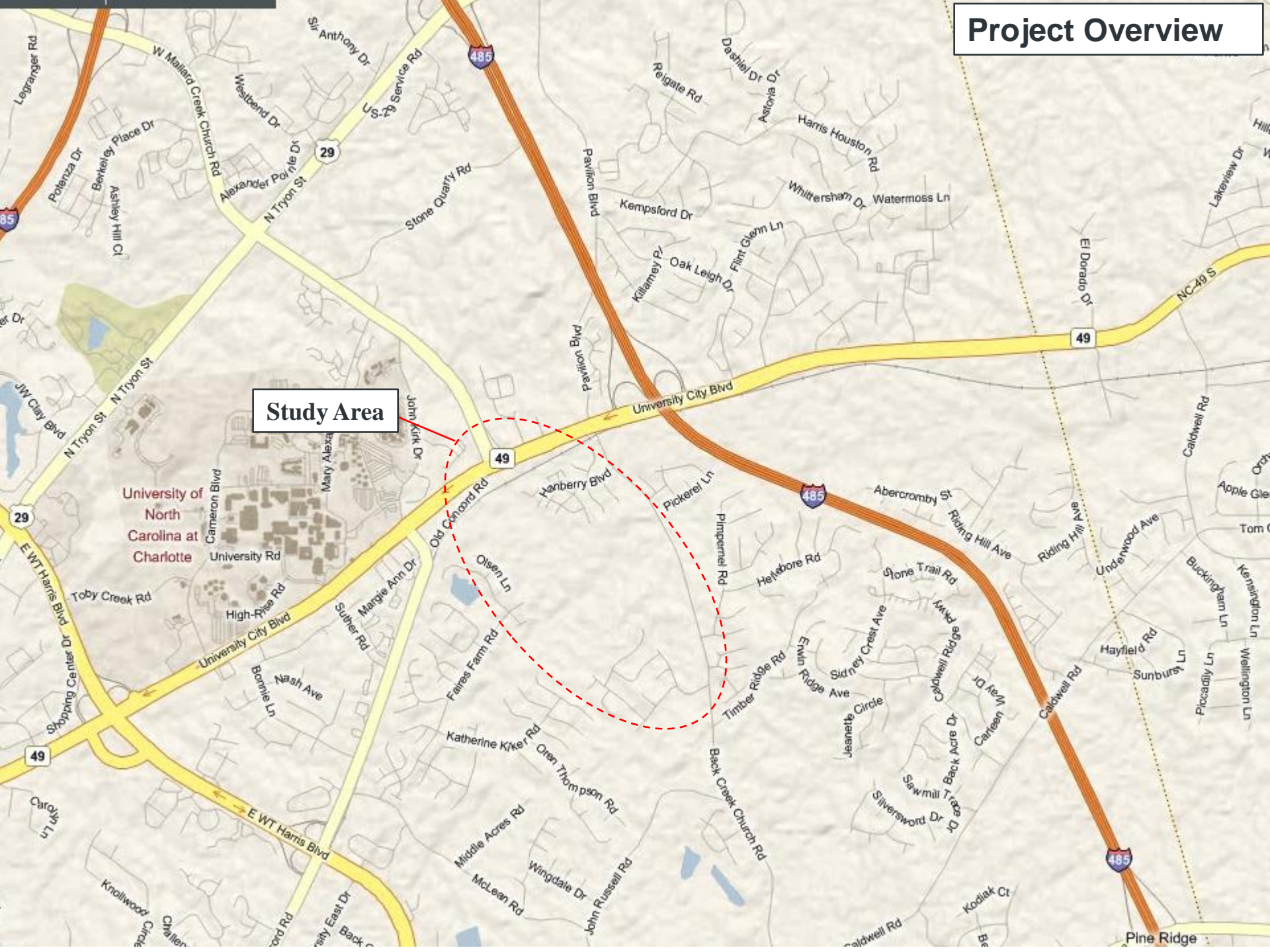


Eastern Circumferential Road - NC49/NCRR Crossing Feasibility Study

Outline

- Project Overview
- Transportation Planning Context
- Project Goals
- Feasibility Study Concept Overview
- Design Criteria & Assumptions
- Concept Screening
- Recommended Design Concept
- Next Steps

Project Overview

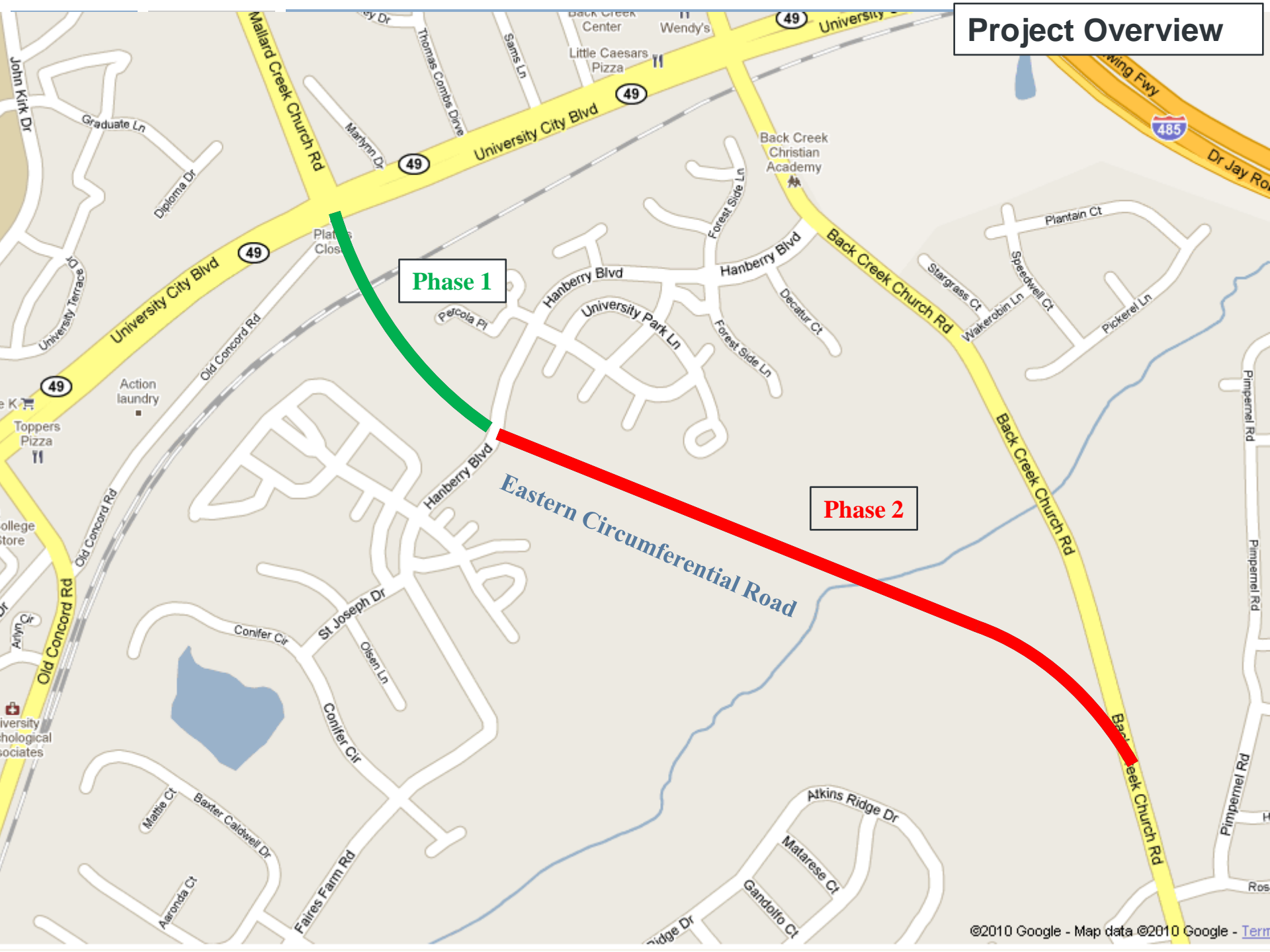


Study Area

University of
North
Carolina at
Charlotte

Pine Ridge

Project Overview

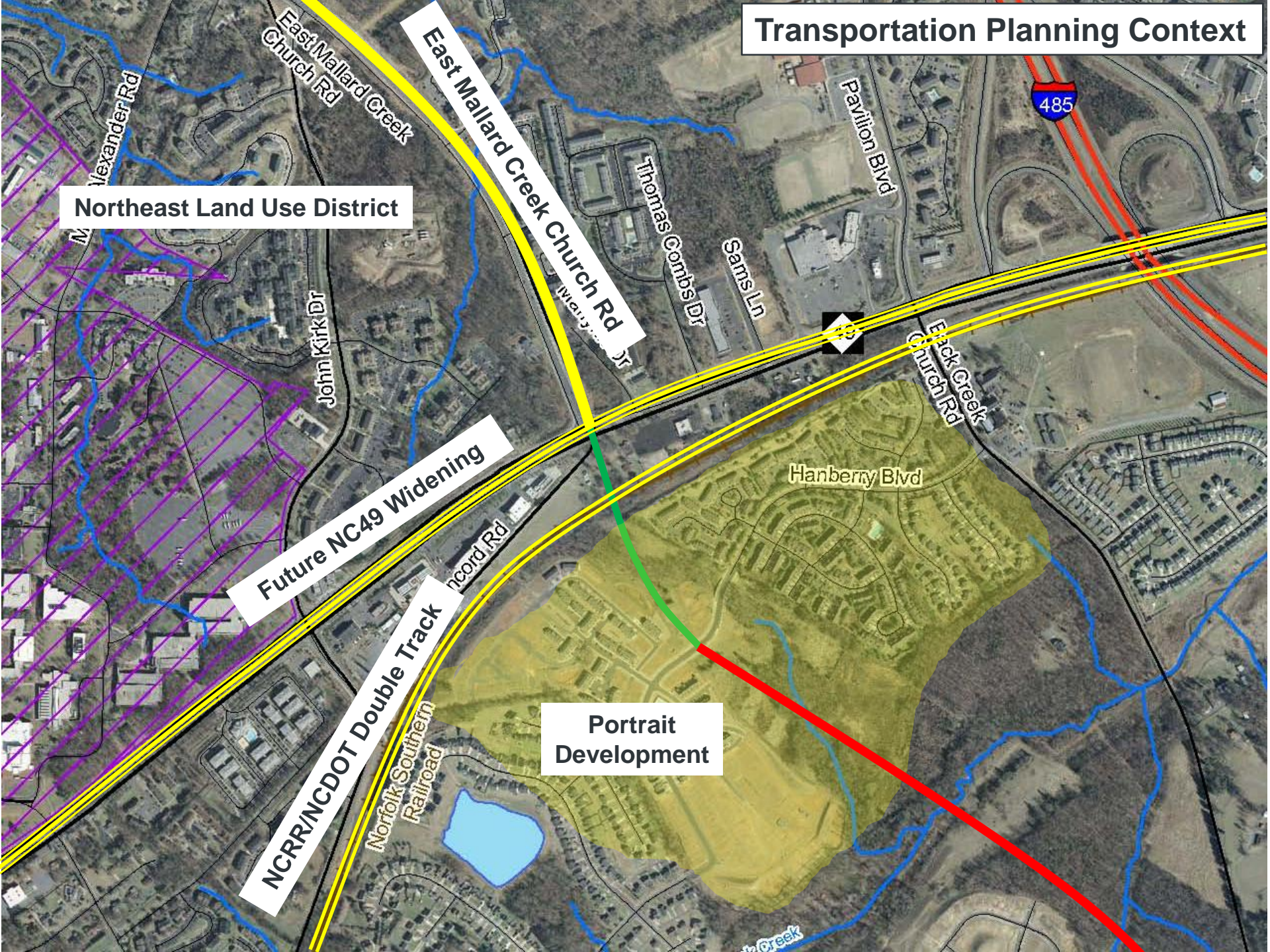


Phase 1

Phase 2

Eastern Circumferential Road

Transportation Planning Context



Northeast Land Use District

East Mallard Creek Church Rd

Future NC49 Widening

NCRR/NCDOT Double Track

Portrait Development

485

Alexander Rd

East Mallard Creek Church Rd

John Kirk Dr

Thomas Combe Dr

Sams Ln

Pavilion Blvd

Eck Creek Church Rd

Hanberry Blvd

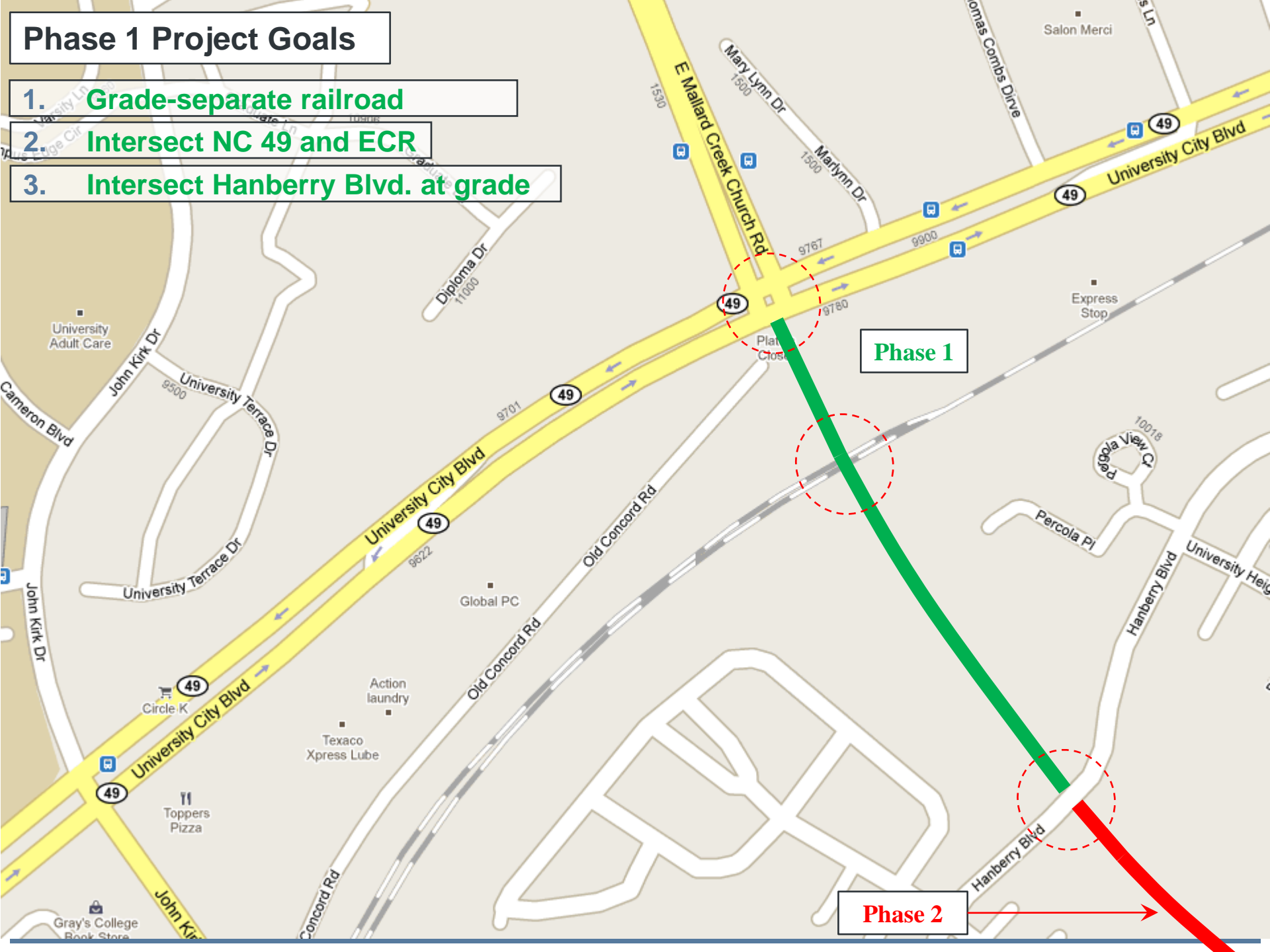
Concord Rd

Norfolk Southern Railroad

Eck Creek

Phase 1 Project Goals

1. **Grade-separate railroad**
2. **Intersect NC 49 and ECR**
3. **Intersect Hanberry Blvd. at grade**



Phase 1

Phase 2

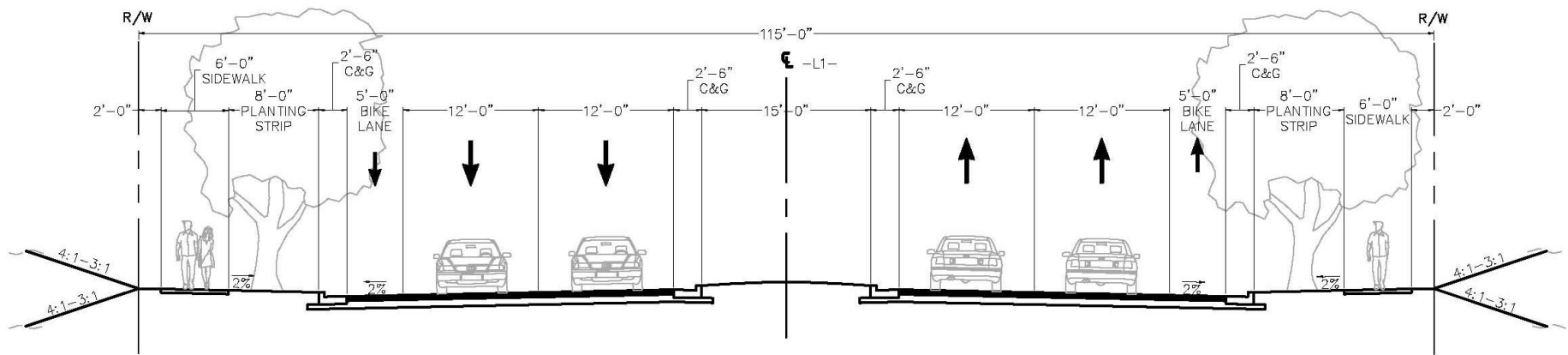
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Design Criteria & Assumptions

- Design standards and references:
 - City of Charlotte USDG
 - NCDOT Design Manuals
 - AASHTO “Green Book”
 - NCRR & NS Railroad Design Standards

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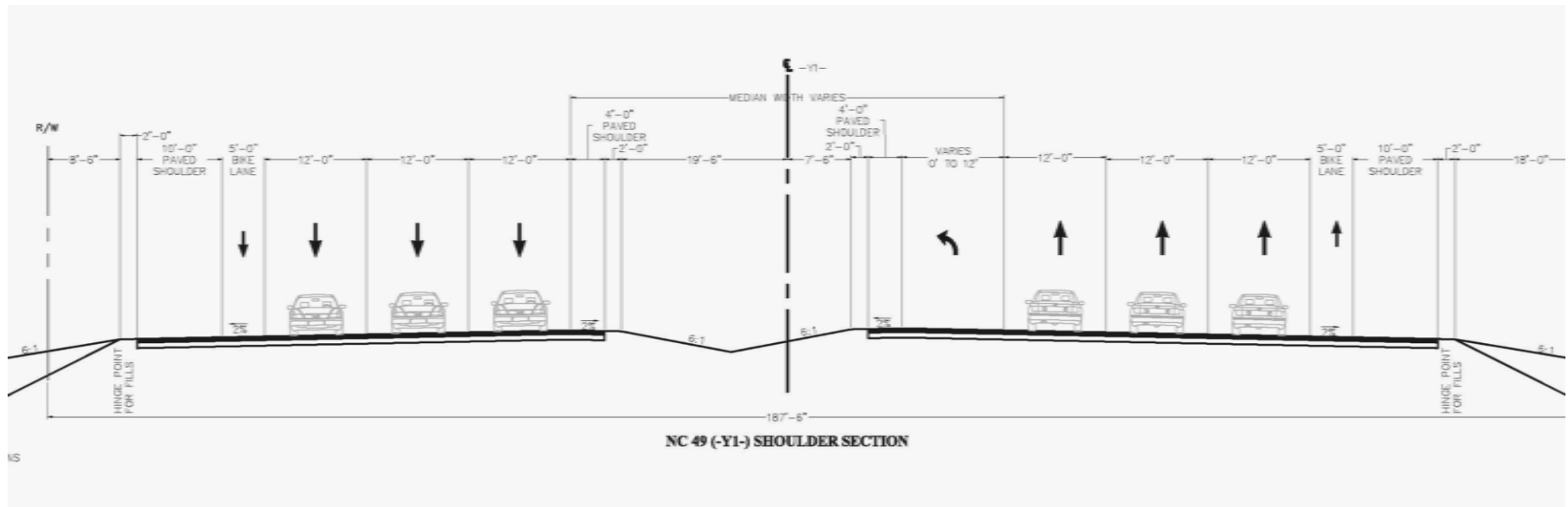
Eastern Circumferential Road Curb & Gutter Divided Section



Designated as Parkway/Divided Collector
– Design/Posted Speed = 50 mph/45 mph

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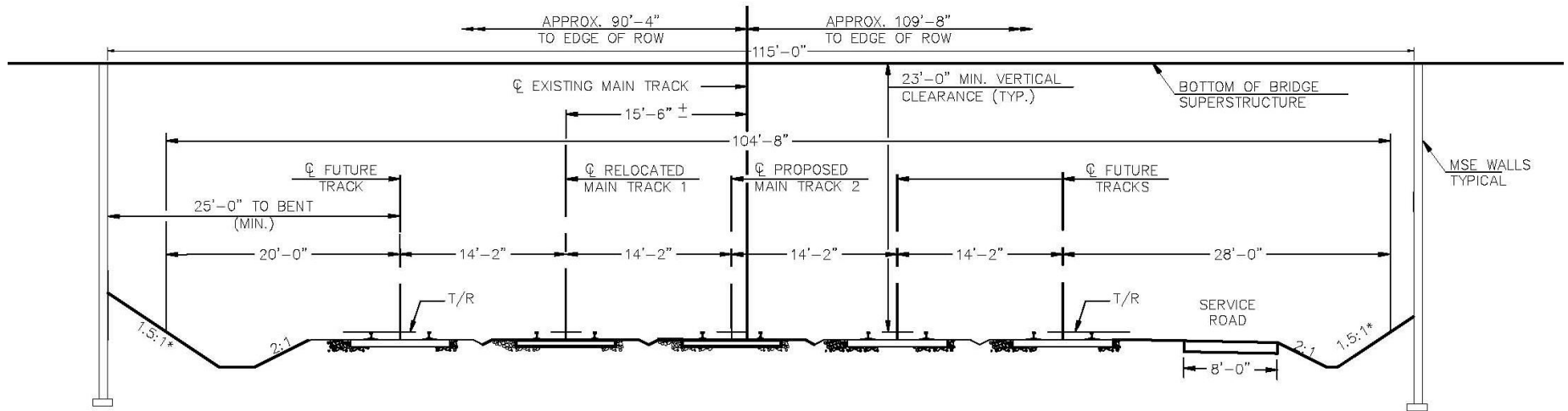
NC 49 Shoulder Section



NC 49 designated as Parkway/Divided Arterial
– Design/Posted Speed = 50 mph/45 mph

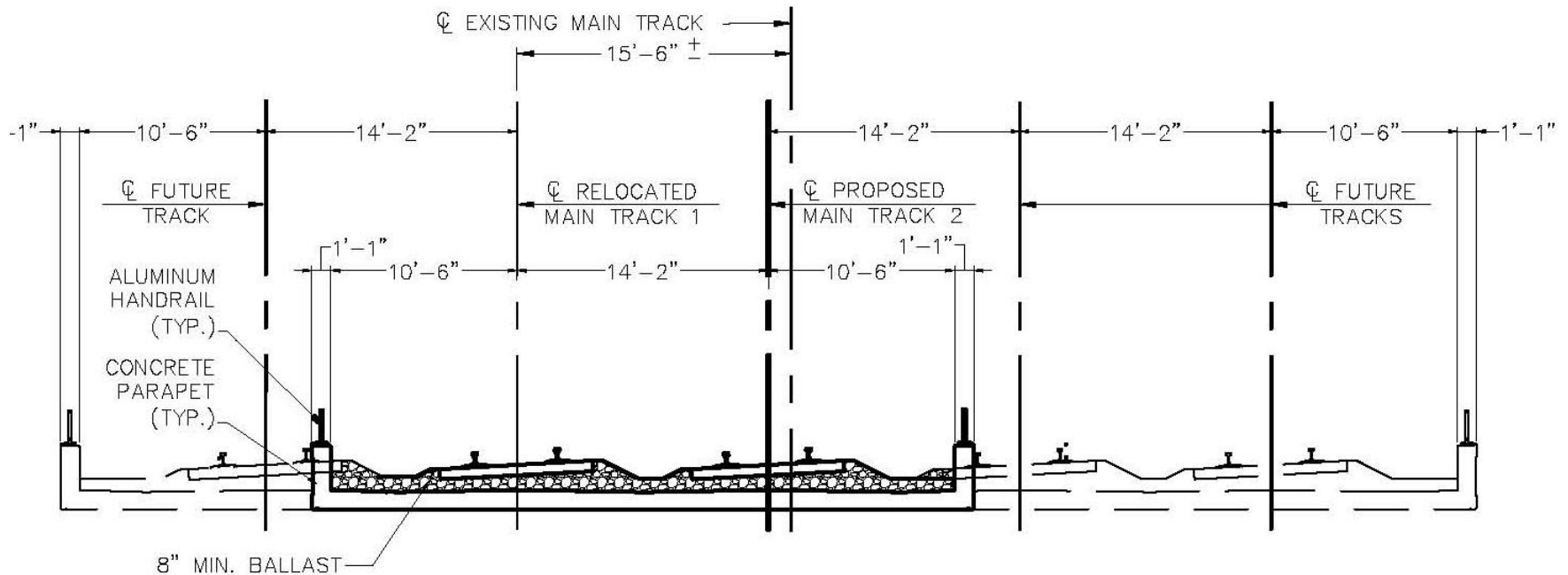
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NS Railroad Bridge Section under ECR Looking West



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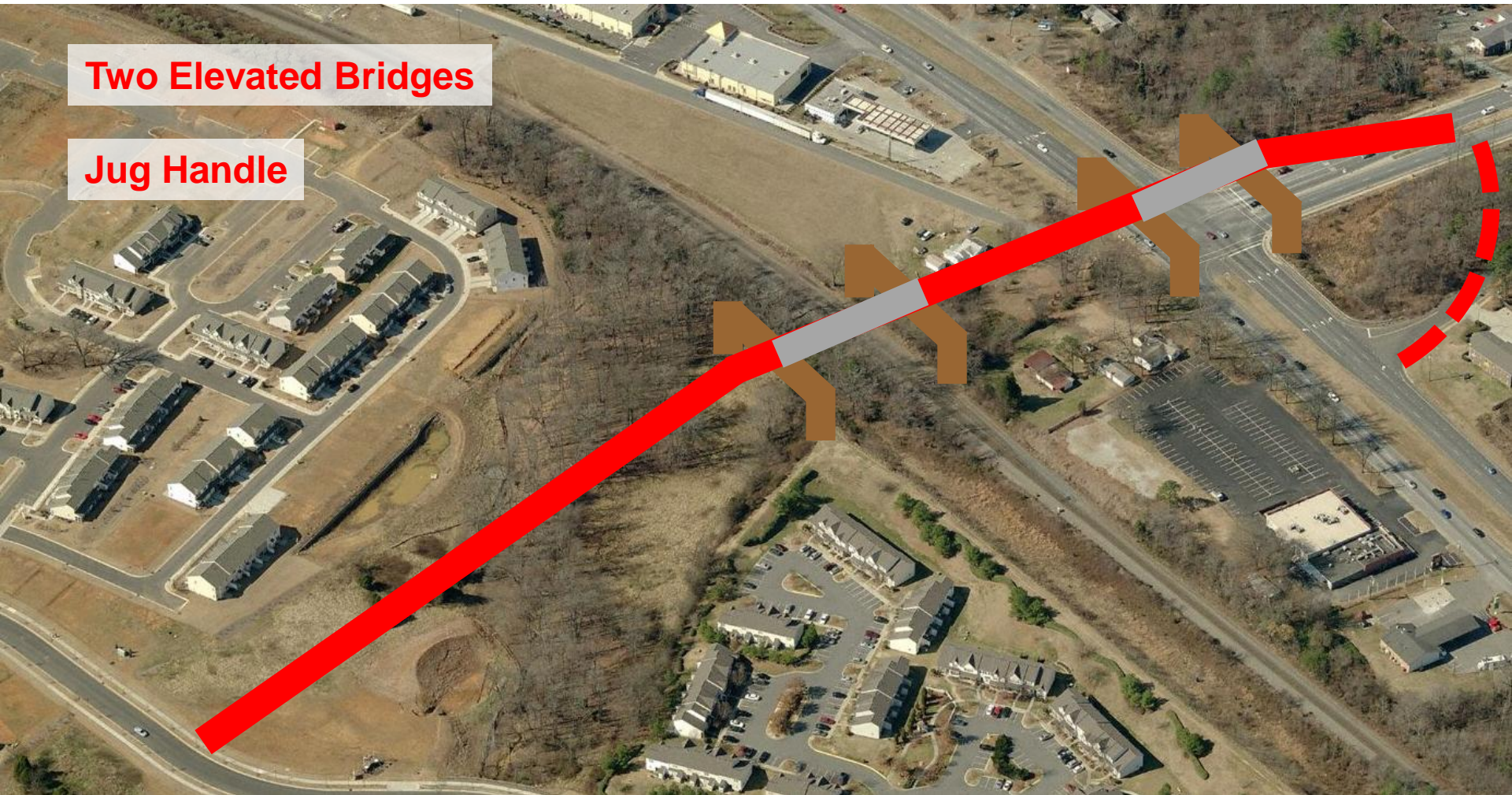
NS Railroad Bridge Section over ECR



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Feasibility Study Concept Overview

- Alt. 1: ECR bridged over NC 49 & NCRR with connector road



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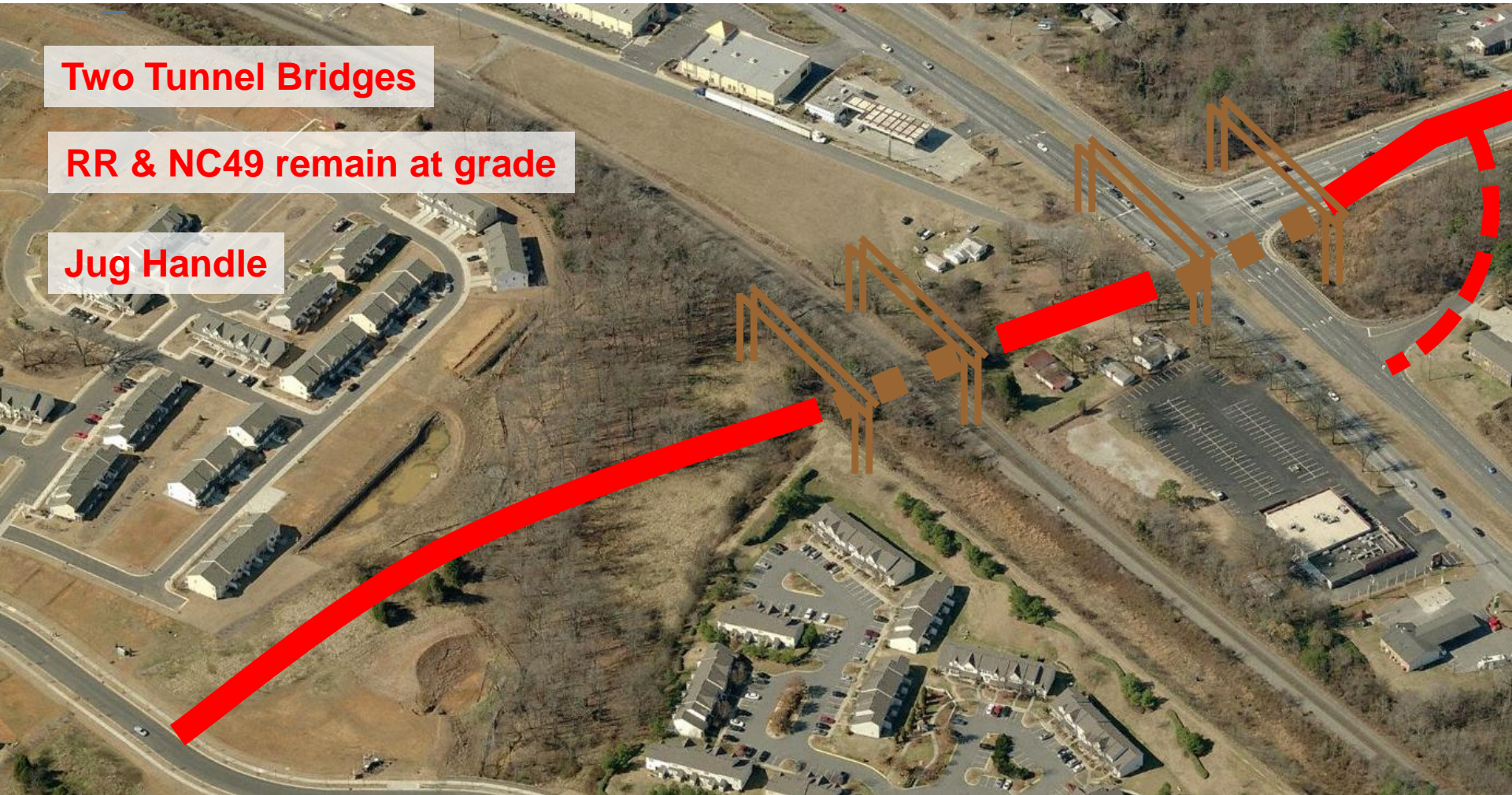
Feasibility Study Concept Overview

- Alt. 2: ECR under NC49 & NCRR with connector road

Two Tunnel Bridges

RR & NC49 remain at grade

Jug Handle



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Feasibility Study Concept Overview

- Alt. 3A: ECR under NCRR & NC49 depressed for at grade intersection



One Tunnel Bridge

RR remains at grade

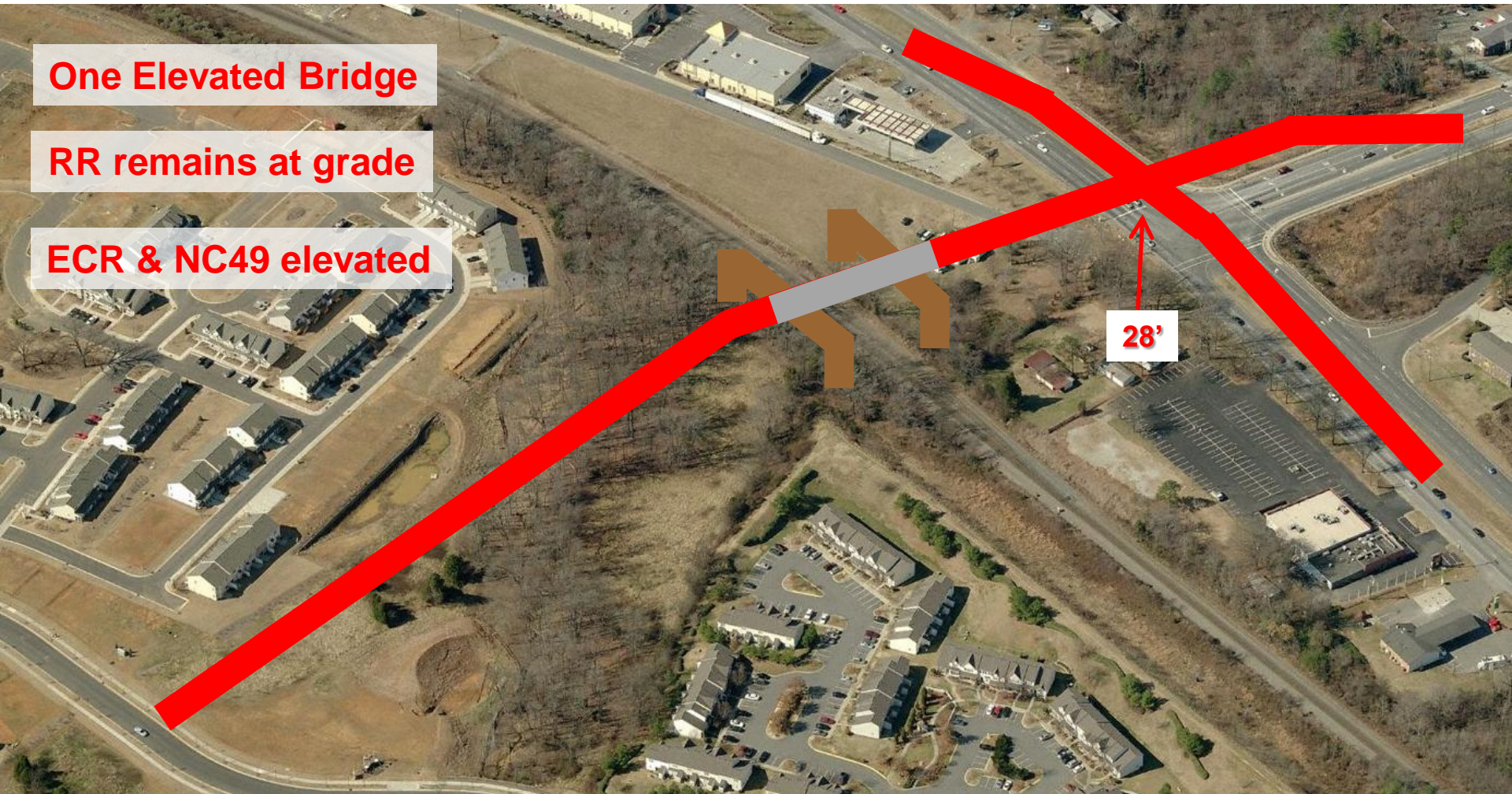
ECR & NC49 depressed

12'

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Feasibility Study Concept Overview

- Alt. 3B: ECR over NCRR & NC49 elevated for at grade intersection



Eastern Circumferential Road - NC49/NCRR Crossing Feasibility Study

Concept Screening Criteria	Alt 1	Alt 2	Alt 3A	Alt 3B
	ECR over	ECR under	Depress NC 49/ECR	Elevate NC 49/ECR
Residential and Business Relocations	29	54	5	71
Multi-family Development Impacts	X	X		X
Opinion of Probable Cost (2010 Dollars)	\$30.7 M	\$30.3 M	\$24.5 M	\$47.2 M
Driveway Closures	1	2	3	7
Closure of Marlynn Drive	X	X		X
Approximate Length of ECR Re-build	940'	2050'	940'	940'

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Recommended Design Concept 3A

– Advantages:

- Minimizes relocations and impacts to adjacent multi-family developments
- Minimum rework to existing ECR
- No driveway closures on ECR
- Does not require closure of Marlynn Drive
- Lowest cost option

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Recommended Design Concept 3A

- **Disadvantages:**
 - Higher right-of-way costs (\$8.4 million)
 - 1 business valued at over \$4 million
 - Requires temporary track to maintain traffic during bridge construction
 - Requires driveway (3) closures on NC49
 - Potential utility and drainage conflicts due to lowering existing NC 49

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Next Steps

- Stakeholder comments
- Finalize Feasibility Study
- Input/Coordination with NCRR project (H2J) design
- Traffic Study
- Refine ROW costs