SEWARD HIGHWAY & SCOOTER AVENUE/ACADEMY DRIVE ROUNDABOUT INTERCHANGE

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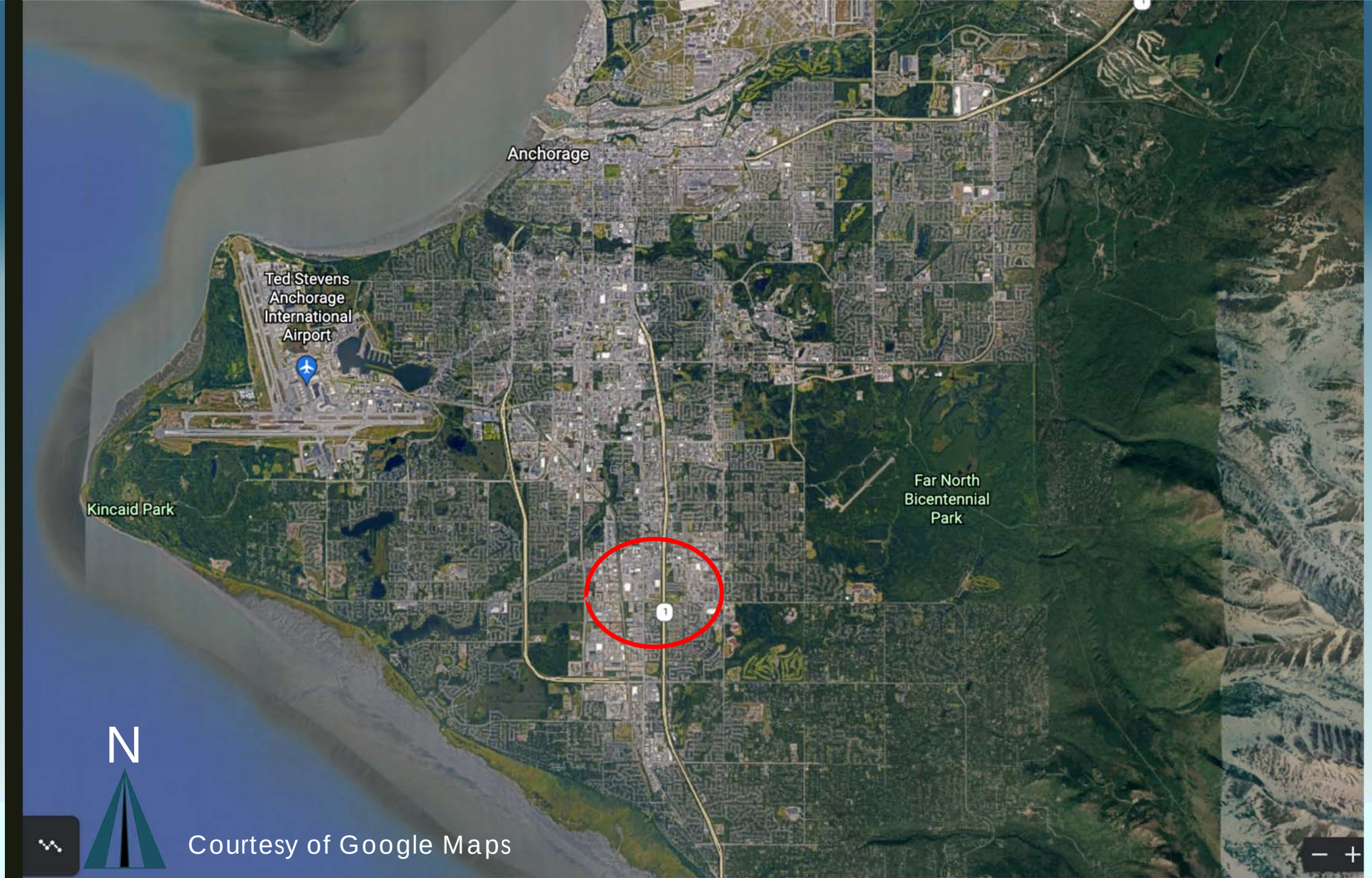
Client: Sean Baski, P.E. | AK DOT & PF

DENALI RIDGE CIVIL ENGINEERS

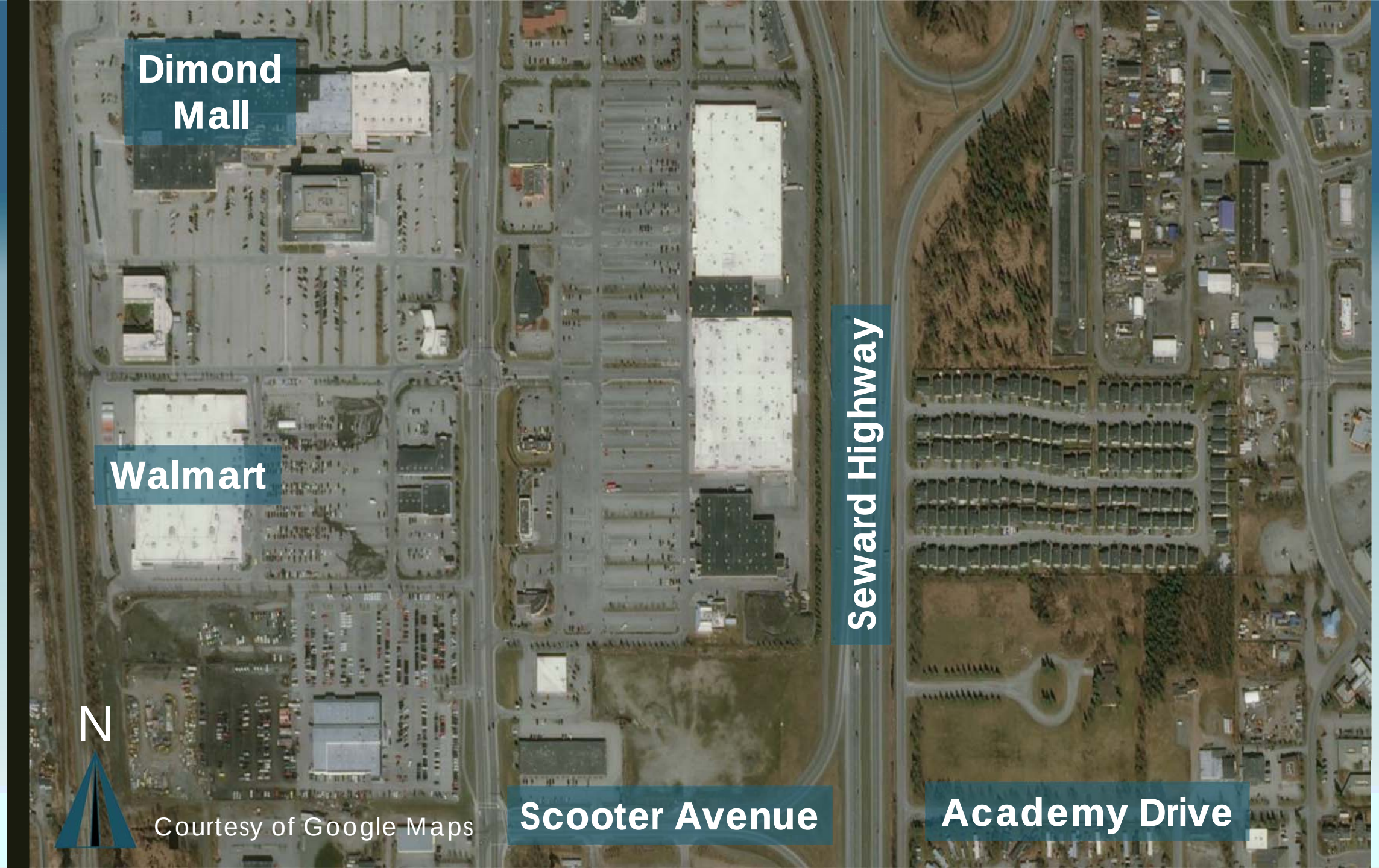
Outline

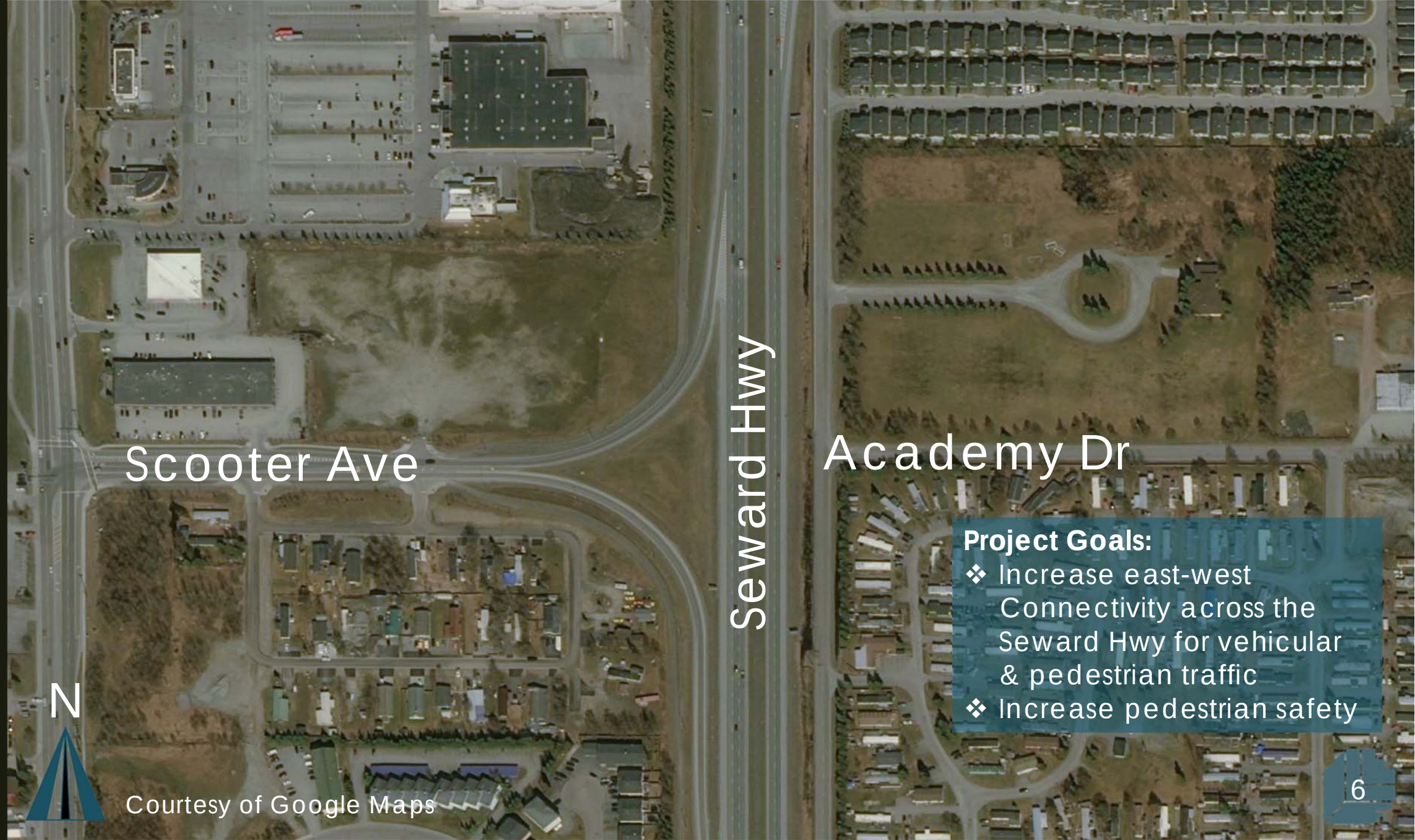
- Location & Background
- Project Goal
- Project Scope
- Alternative Designs
- Preferred Alternative



Courtesy of Google Maps


Dimond Blvd
1.5 mi
O'Malley Rd
Walter J. Hickel Pkwy
Seward Hwy
N
3D
Courtesy of Google Maps


Dimond Mall
Walmart
Seward Highway
N
Courtesy of Google Maps
Scooter Avenue
Academy Drive



Project Goals:

- Increase east-west Connectivity across the Seward Hwy for vehicular & pedestrian traffic
- Increase pedestrian safety

Courtesy of Google Maps


Courtesy of Google Earth
Scooter Avenue

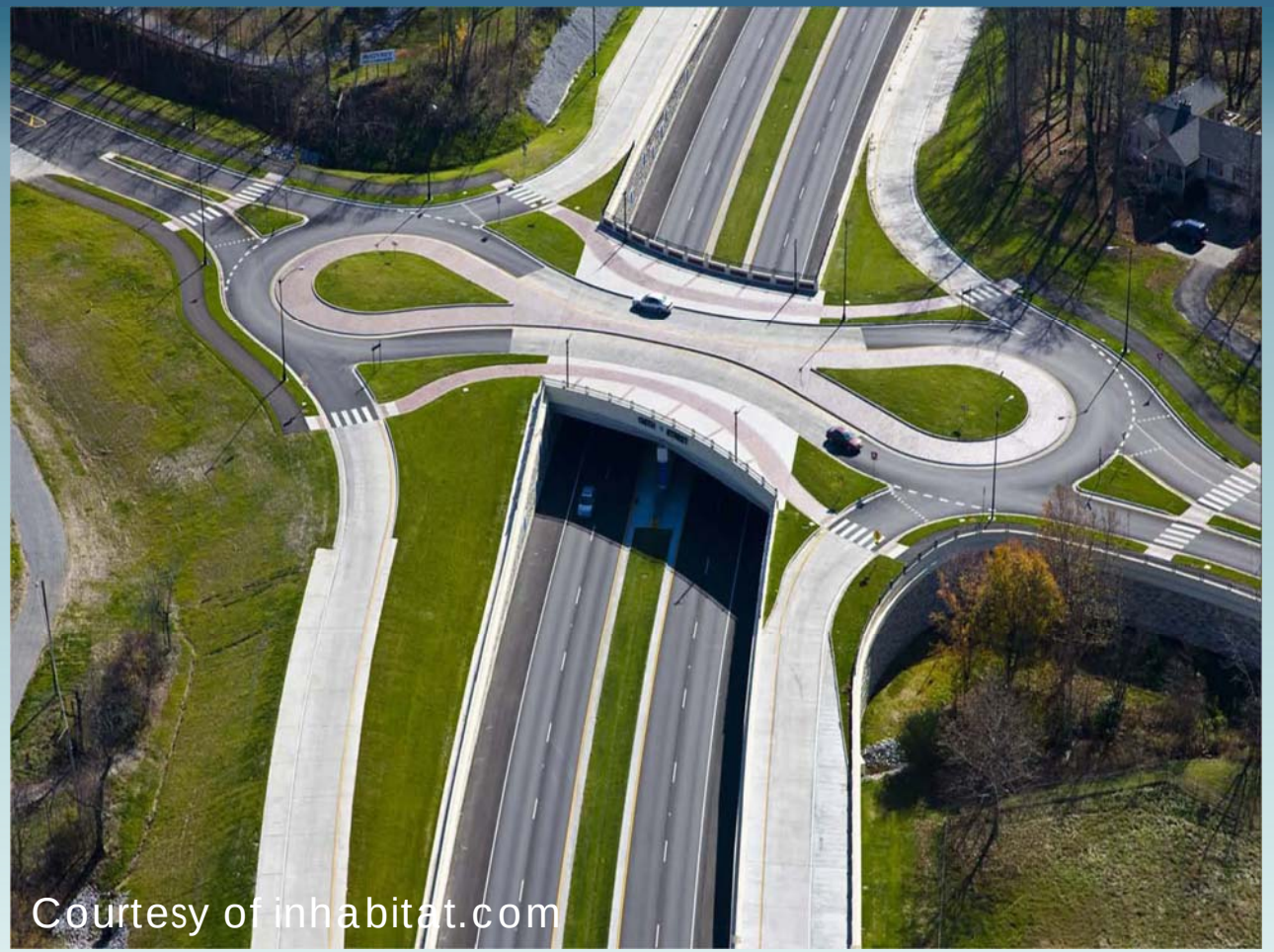

STOP
Courtesy of Google Earth
Academy Drive

Project Scope

- Design Focus:
  - Horizontal & vertical realignment
  - Roundabout interchange
  - Pedestrian & bicycle safety improvements
  - ROW acquisition
  - Utility relocation
- Analyze multiple alternatives to at least 10% design

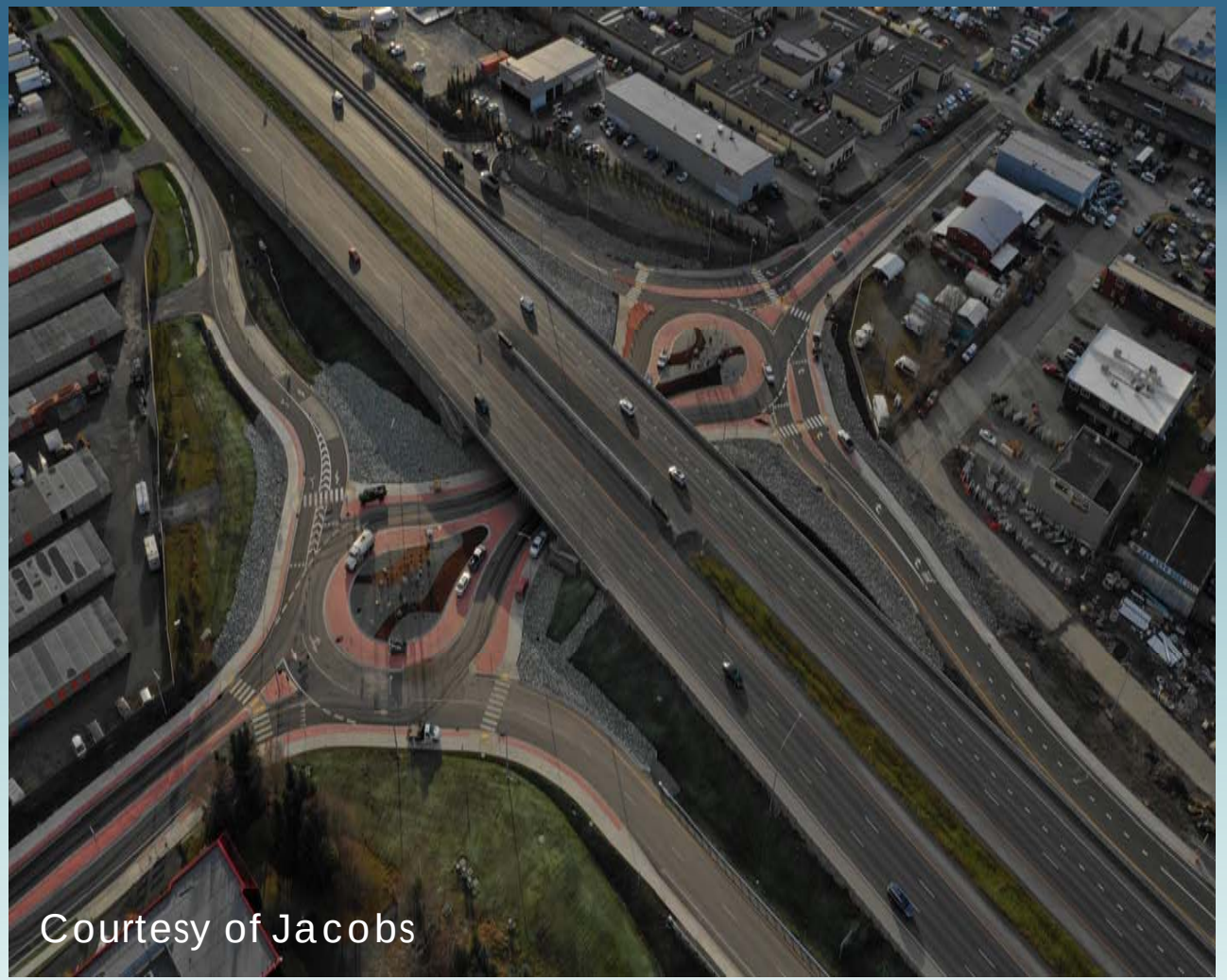
Alternative 1

- An interchange of two roundabouts will be constructed ***above*** the Seward Highway.
- Seward Highway remains at existing elevation.
- Pedestrian facilities will be added.
- Roadway geometry will be analyzed for pedestrian and vehicular safety.

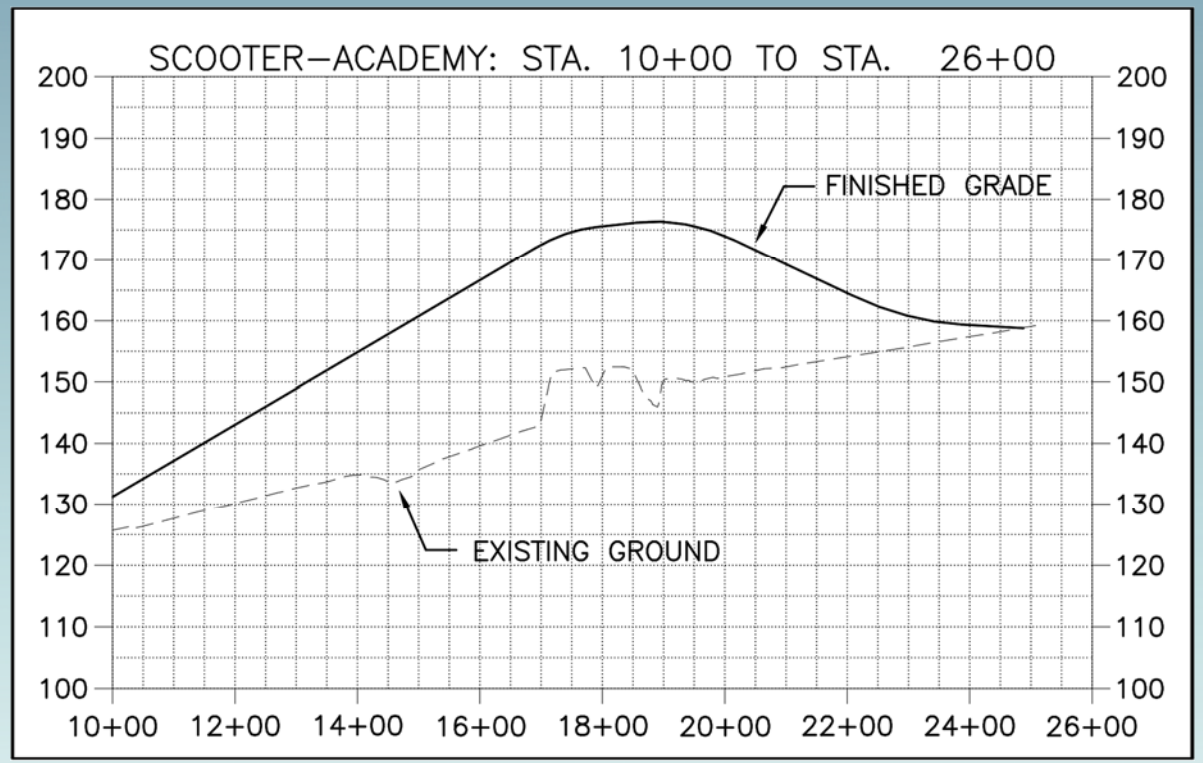


Alternative 2

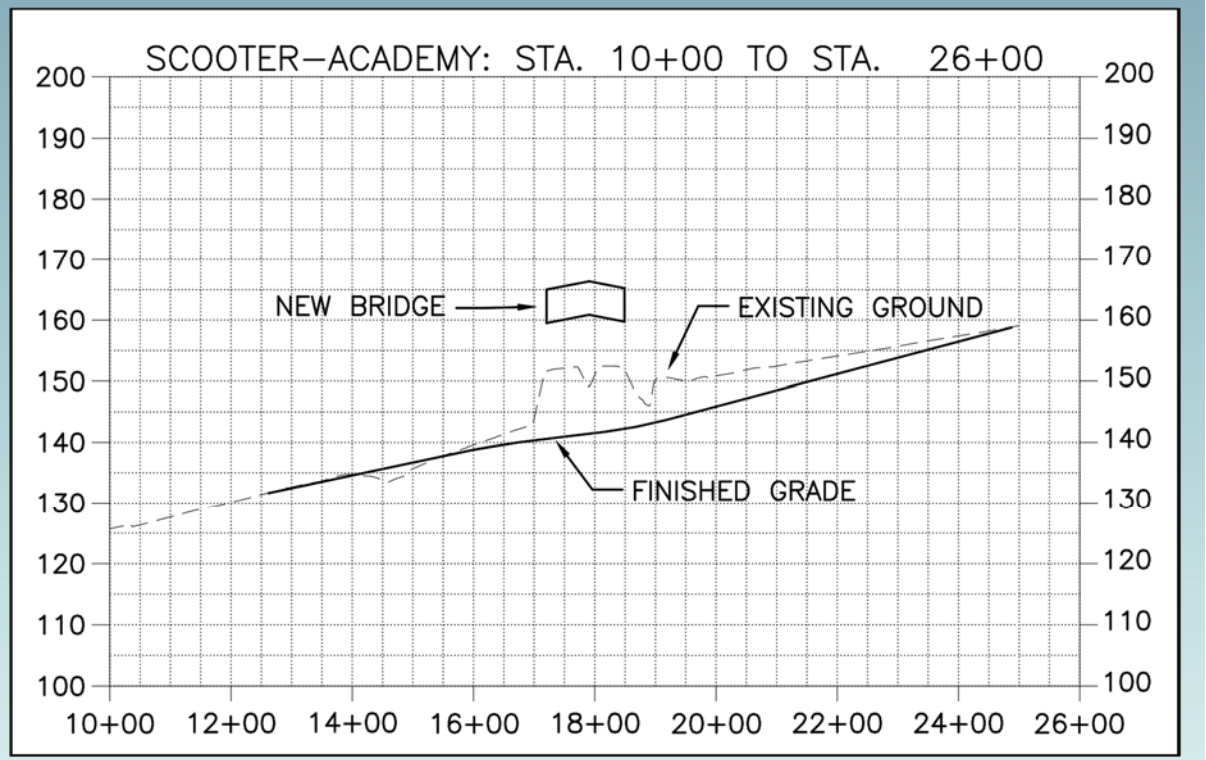
- An interchange of two roundabouts will be constructed ***below*** the Seward Highway.
- Seward Highway will be raised by ~15 ft.
- Pedestrian facilities will be added.
- Roadway geometry will be analyzed for pedestrian and vehicular safety.



Alternative 1



Alternative 2

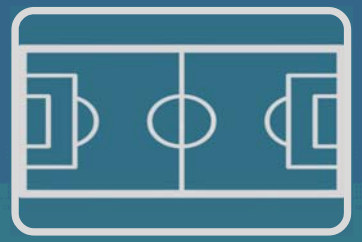


Right-of-Way

ROW Impacts <u>for Alternative 1</u>

Adjusted road grades require more space.

Greater impacts on land to the East.



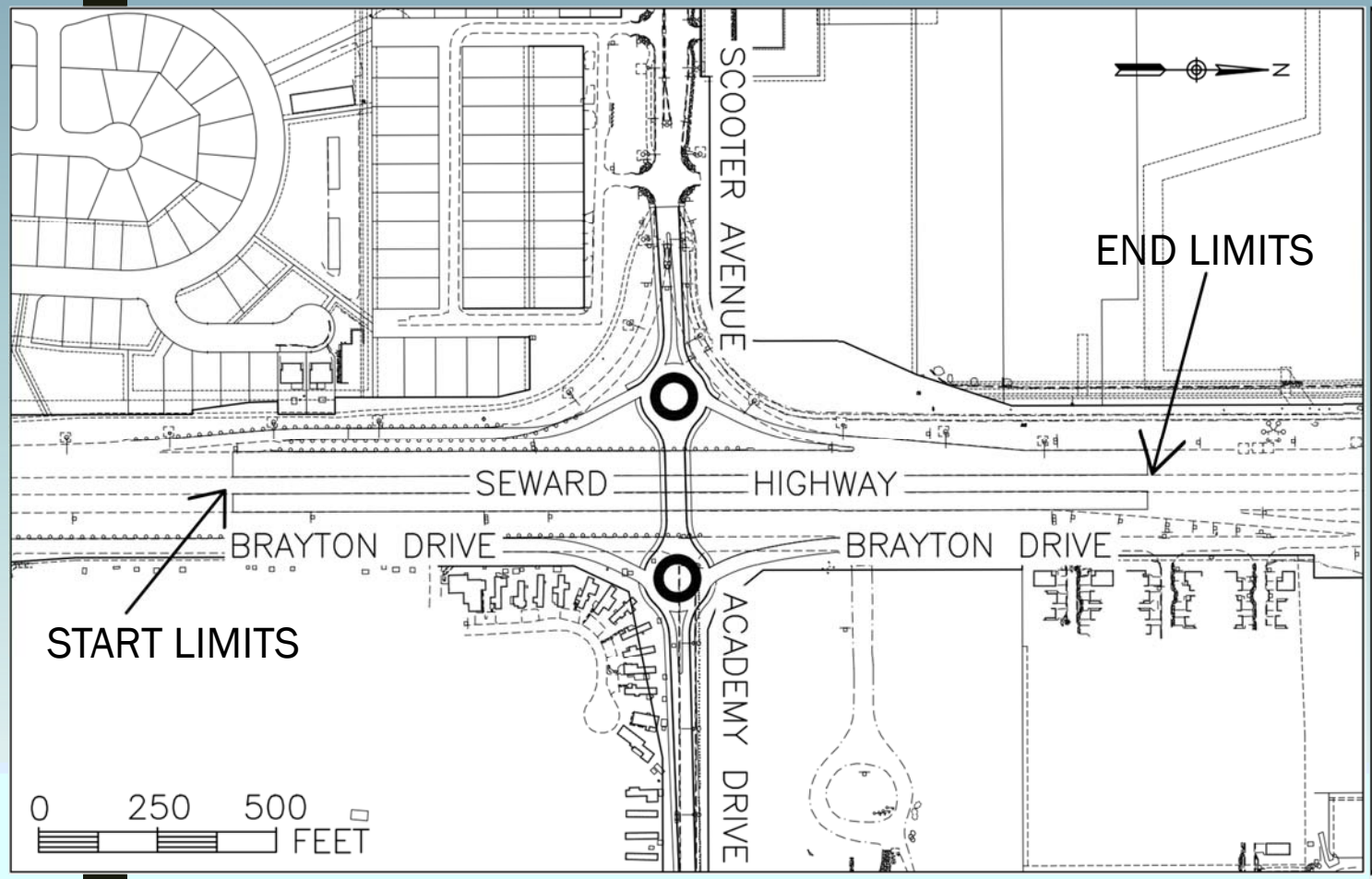
ROW Impacts <u>for Alternative 2</u>

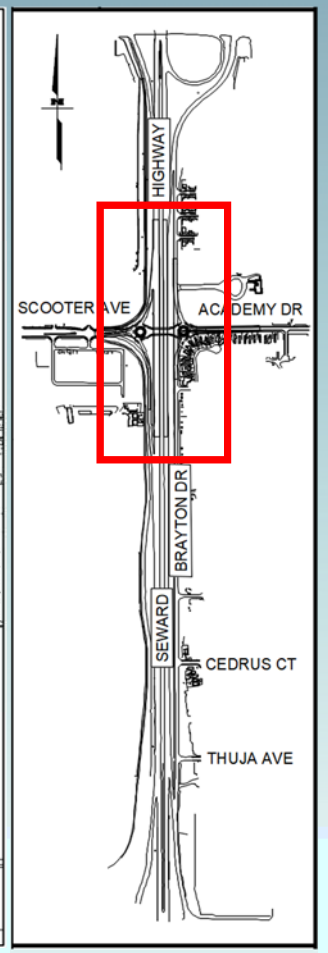
Road grade remains much the same.

Impacts on land surrounding the roundabout to the East.

Preferred Alternative

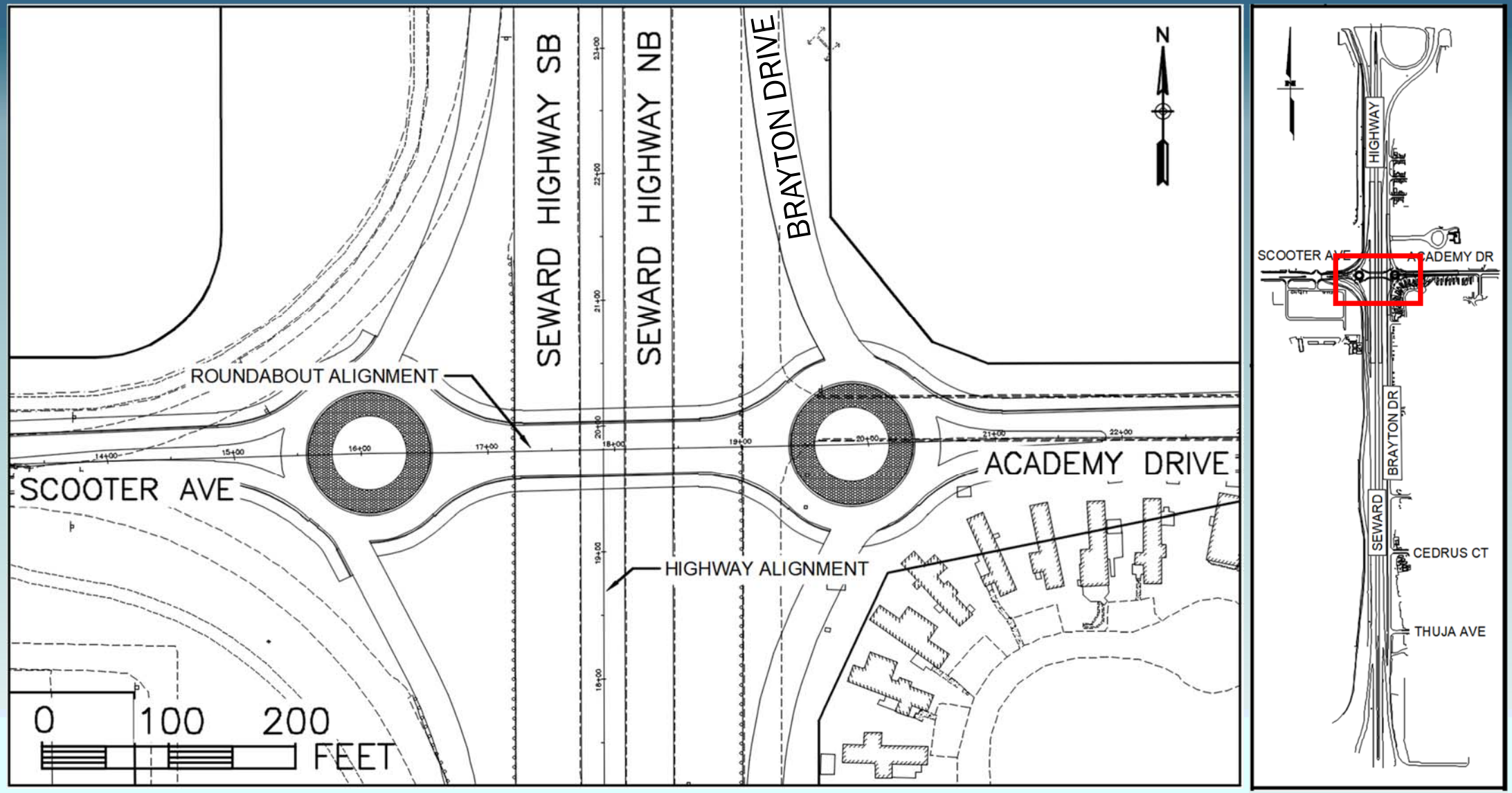
- Alternative 2 is preferred.



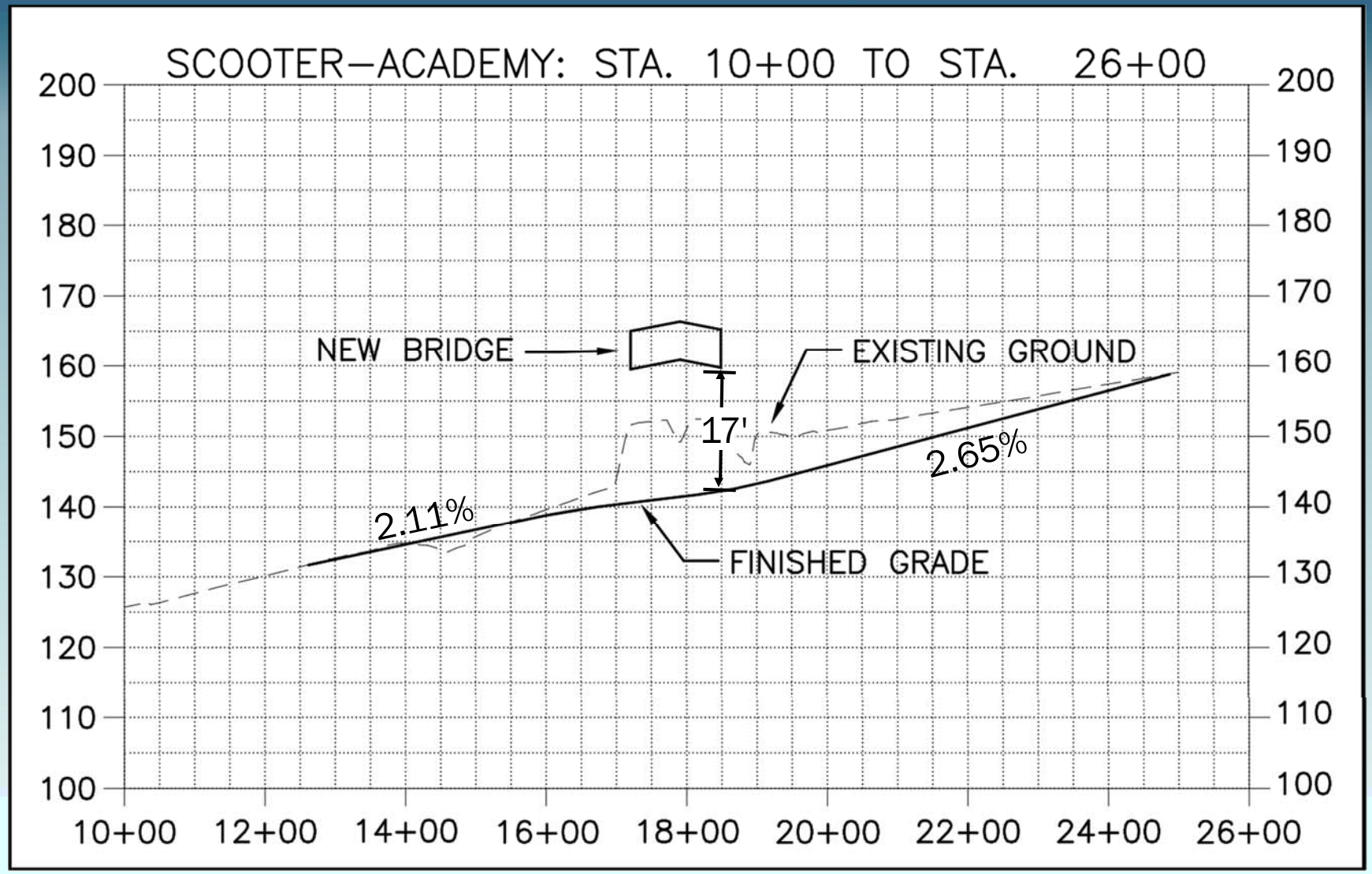


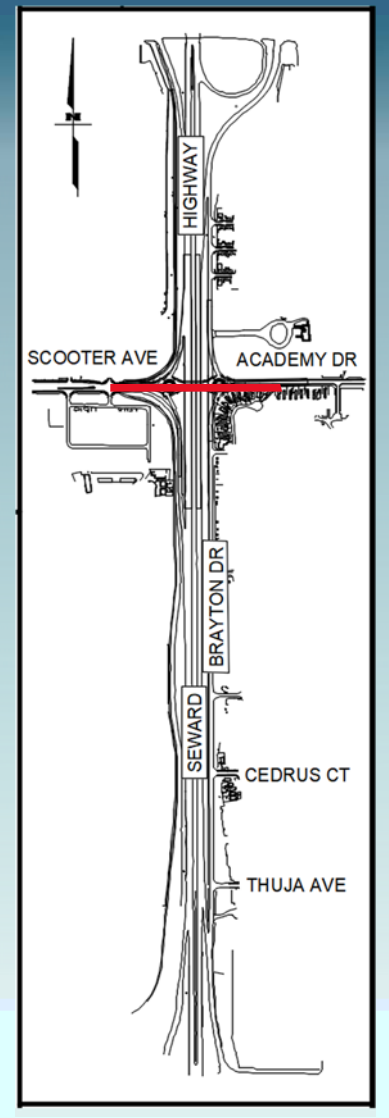
- Less ROW impacts
- More cost effective
- Better for pedestrians

Preferred Alternative Plans

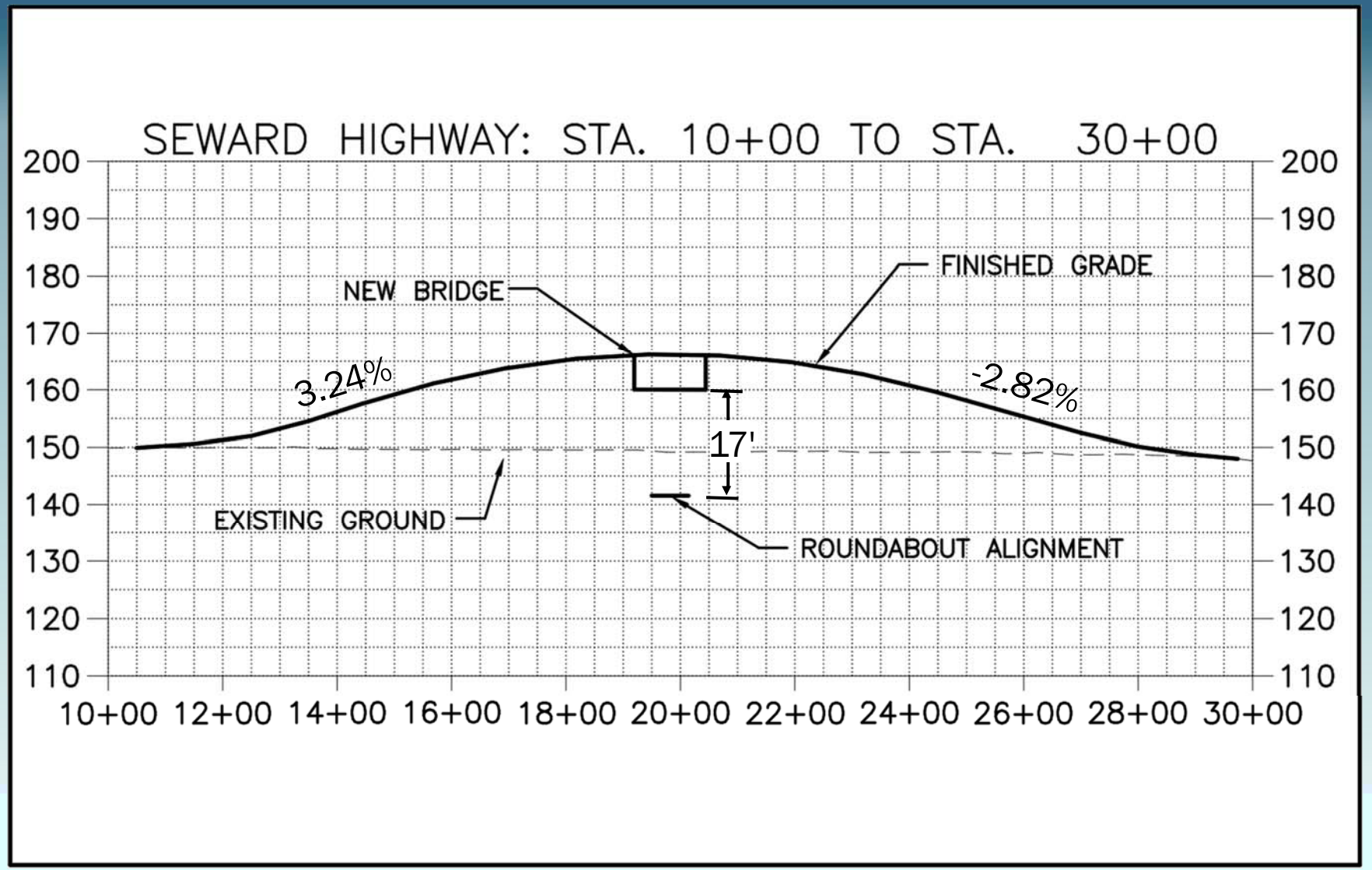


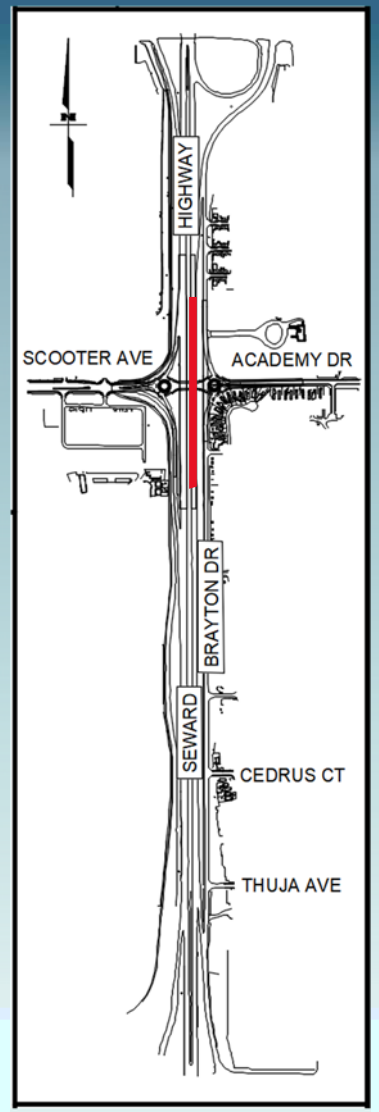
Preferred Alternative Plans Continued





Preferred Alternative Plans Continued





Right-of-Way


SCOOTER AVE
SEWARD HIGHWAY SOUTHBOUND
SEWARD HIGHWAY NORTHBOUND
ACADEMY DR

Right-of-Way Continued

Seward Highway and Lore Rd/76th Ave Roundabout Interchange

Schedule and Budget

Schedule

- Minor deadlines were extended, but overall, we stayed on schedule.

Budget

- No money was lost by our company, and we stayed on budget.

Acknowledgements

- Lead Professional Mentor
  - *James McCurtain, P.E. | Jacobs*
- Professional Mentor
  - *Jim Potts, P.E. | Jacobs*
- Faculty Advisor
  - *Vinod Vasudevan, Ph.D, P.E. | UAA*

Design Criteria-Scooter Ave/Academy Dr

- Present ADT: 300
- Design Year: 2040
- Design Year ADT: 20,000
- Design Vehicle: WB-67 (common semitrailer)
- Lane width: 12 ft
- Shoulder width: 4 ft (outside)
- Cross Slope: 2%
- Maximum allowable grade: 6%
- Minimum K-Values: 49 (sag) & 29 (crest)
- Side Slope ratios: 4:1 (foreslopes) & 2:1 (backslopes)
- Bicycle lane width: 5 ft
- Pathway width: 4 ft

Design Criteria-Seward Highway

- Present ADT: 34,000
- Design Year: 2040
- Design Year ADT: 69,000
- Design Vehicle: WB-109D (turnpike double semitrailer)
- Lane width: 12 ft
- Shoulder width: 10 ft (outside & inside)
- Cross Slope: 2%
- Maximum allowable grade: 4%
- Bridge width: 128.5 ft
- Minimum K-Values: 181 (sag) & 247 (crest)
- Side Slope ratios: 4:1 (foreslopes) & 2:1 (backslopes)
- Median treatment: depressed

Project Schedule

PHASE I
1/21-2/24

- Project Site Visit
- Data Collection & Analysis
- Preferred Alternative Chosen

PHASE II
2/24-4/1

- Begin Design Study Report
- Engineering Estimate
- CAD Work (Highway Realignment & Roundabout Design)

PHASE III
4/1-4/22

- Complete Design Study Report
- CAD Work (Finalize Plan Sets)
- Final Presentation

Schedule/Budget Info

- Schedule Changes:
  - Internal deadlines extended for: EA, ROW calculations, pedestrian/bicycle safety improvements, utility relocations
- Overall design budget: $316,500
- Preliminary design budget: 75,000
- Used 70% of prelim design budget
- Estimated $40 million cost of construction
  - Based on the Seward Highway and Lore Rd/76th Ave roundabout construction