

# Reducing Utility Damages -Case Studies-



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# Case Studies

1. Communications conduit install via trenchless technology
2. Communications install resulting in a gas damage
3. Excavation to do plumbing and septic work resulting in a gas damage
4. Excavation to do drainage work resulting in a gas damage

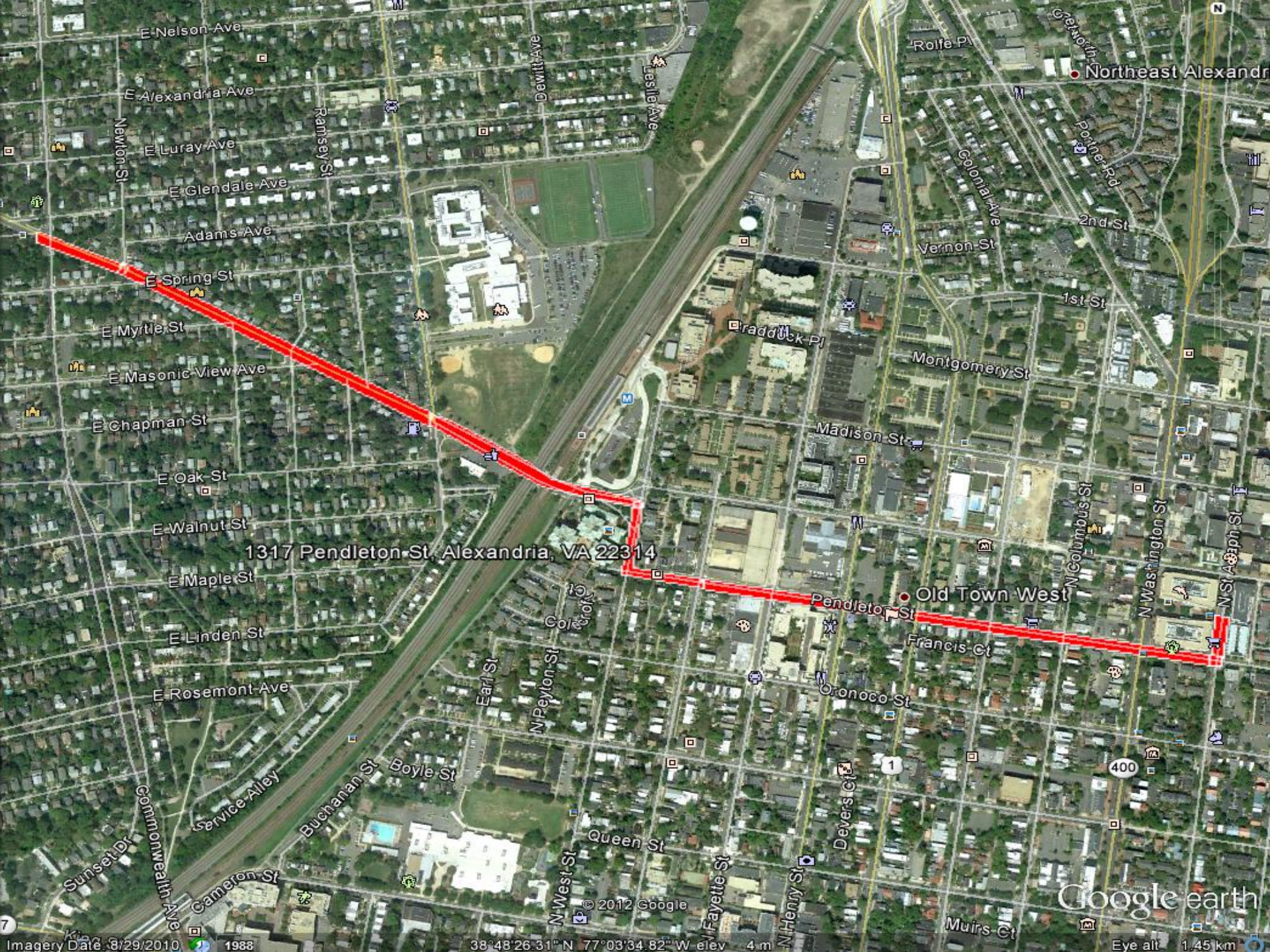
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# What Happened?

- Total of 111 utilities not potholed:
  - 109 utilities crossed without potholing
    - 18 communication
    - 27 water
    - 9 power
    - 8 sewer
    - 47 gas
  - 1 communication utility paralleled without exposing at reasonable distances
  - 1 gas utility that the bore path came within 2 feet and it was not potholed





E Nelson Ave  
 E Alexandria Ave  
 E Luray Ave  
 E Glendale Ave  
 Adams Ave  
 E Spring St  
 E Myrtle St  
 E Masonic View Ave  
 E Chapman St  
 E Oak St  
 E Walnut St  
 E Maple St  
 E Linden St  
 E Rosemont Ave  
 Commonwealth Ave  
 Service Alley  
 Buchanan St  
 Boyle St  
 Queen St  
 N West St  
 N Fayette St  
 N Henry St  
 Dewitt Ave  
 Leslie Ave  
 Radduck Pl  
 Madison St  
 Oronoco St  
 Devers Ct  
 N Columbus St  
 N Washington St  
 N St Annapolis St  
 Muirs Ct

1317 Pendleton St, Alexandria, VA 22314

Old Town West

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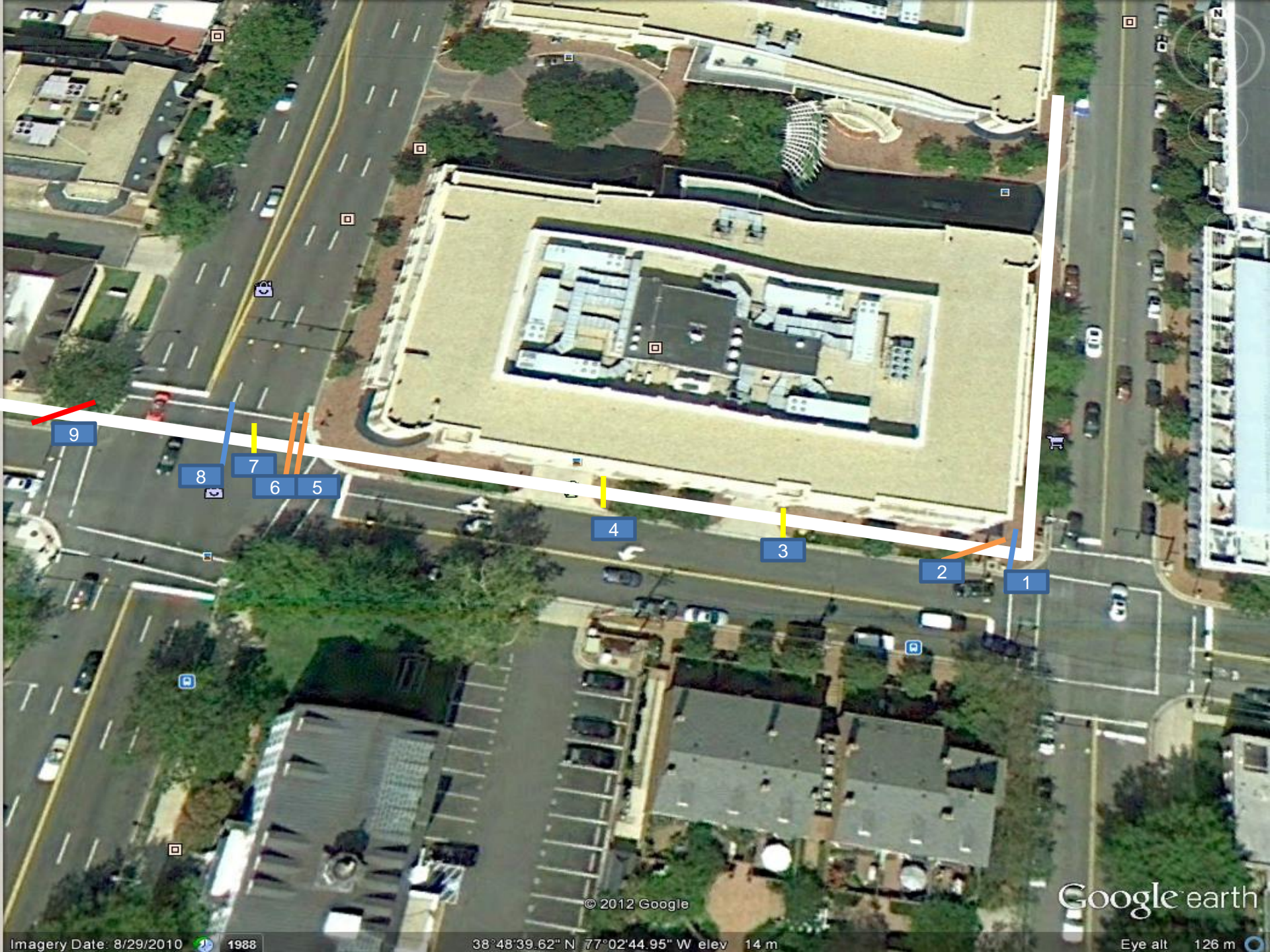
Imagery Date: 8/29/2010 1988

38°48'26.31" N 77°03'34.82" W elev 4 m

Eye alt 1.45 km

Google earth





9

8

7

6

5

4

3

2

1

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Google earth

Imagery Date: 8/29/2010 1988

38°48'39.62" N 77°02'44.95" W elev 14 m

Eye alt 126 m



709 Pendleton St, Alexandria, VA 22314

20

19

18

17

16

15

14

13

12

11

10





Old Town West

Francis Ct

- 37
- 36
- 35
- 34
- 33
- 32
- 31
- 30
- 29
- 28
- 27
- 26
- 25
- 24
- 23
- 22
- 21

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N Fayette St



48

47

46

45

44

43

42

Pendleton St

41

40

39

38

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505 E Braddock Rd, Alexandria, VA 22314

Pendleton St

52

51

50

49

N 1st St

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66 65

64 63

62 61

60 59

58 57

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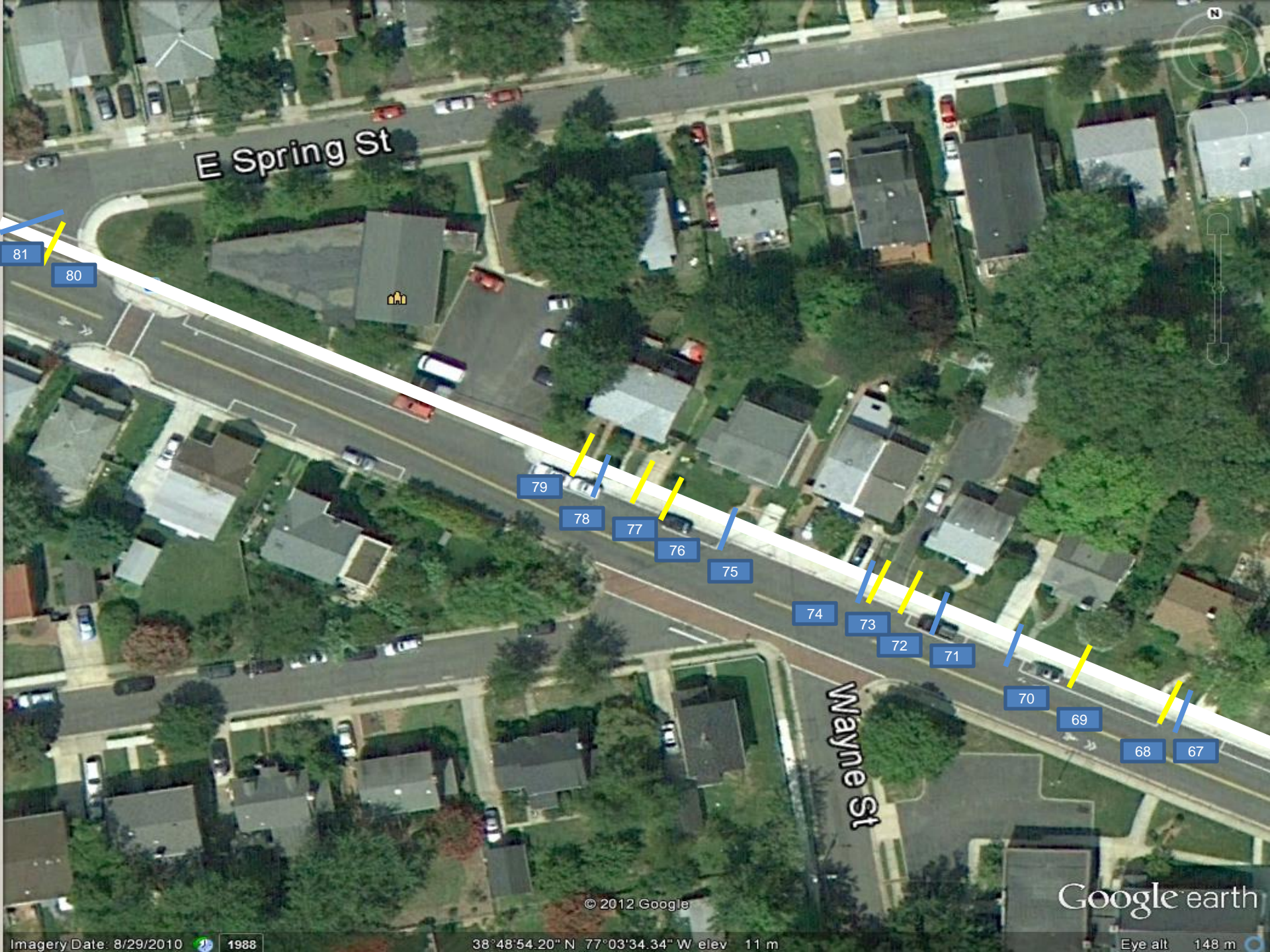
E Braddock Rd

Ransley St

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E Spring St

Wayne St

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Imagery Date: 8/29/2010 1988

38°48'54.20" N 77°03'34.34" W elev 11 m

Eye alt 148 m





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Imagery Date: 8/29/2010 1988

38°48'56.30" N 77°03'42.47" W elev 10 m

Eye alt 135 m



# Results

- Probable Violations:
  1. 111 – 24A (Exercise due care to protect the utility)
  2. 111 – 150.6 (Pothole while crossing or paralleling)
  3. 110 – 150.8 (Watch drill head pass through potholes)
  4. 110 – 150.4 (Ensure sufficient clearance during pullback)
- Civil Penalty - \$97,750.00
- Remedial Actions:
  1. Company will expose all utilities crossed that were not potholed to ensure no damage has occurred and proper separation is achieved
  2. Company will be required to take mandatory training without a reduction in penalty



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# What Happened?

- Gas service was damaged while installing communications
- Damaged gas line was repaired by the excavator with plumber's putty
- Damage was then buried and the operator was not notified
- Gas company was made aware of damage via odor complaints almost 2 months later







# Results

- Probable Violations:
  1. 1 – 24A (Exercise due care to protect the utility)
  2. 1 – 24D (Immediately notify the operator of damage)
  3. 1 – 24E (Take steps to safeguard life, health, and property)
- Staff Recommendation:
  - Civil Penalty = \$3,300
- Advisory Committee Recommendation:
  - Civil Penalty = \$5,800



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# What Happened?

- Gas service was damaged with mechanized equipment while doing plumbing and septic work
- No ticket requested prior to the start of the excavation
- Emergency ticket was requested after the excavation began
- Locator arrived to mark the site appx. 40 min after the emergency notice and found the work had been started and the gas service had been damaged
- Excavator capped the damaged line with a lavatory valve
- Locator advised the excavator to call the police and the gas company to report the damage
- Excavator continued to work after the temporary repair was made
- Excavator did not report the damage
- Locator found out almost 2 hrs later that the damage was not reported and notified the operator



09/14/2011 12:09





DAMAGE ↓

1 2 3 4

09/14/2011 12:09





09/14/2011 12:10



# Results

- Probable Violations:
  1. 1 – 17A (Notify Miss Utility prior to excavation)
  2. 1 – 24D (Immediately notify the operator of damage)
  3. 1 – 24E (Take steps to safeguard life, health, and property)
  4. 90.3.e. (Wait for the marking of the lines...)
- Civil Penalty - \$5,700
- Training - \$1,750

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# What Happened?

- Excavator had a valid ticket
- Gas main was accurately marked
- Gas main was damaged with mechanical equipment while doing drainage work
- Excavator was using the mechanized equipment within 2 ft of the utility marks
- Excavator did not report the damage
- Gas company was made aware of damage via an odor complaint from the homeowner almost 5 months later
- The foreman instructed his employee to wrap the damaged gas main with electrical tape and to cover it up
- The foreman was a promising employee of the company for over 16 yrs showing great potential, yet was terminated as a result of this incident







# Results

- Probable Violations:
  1. 1 – 24A (Exercise due care to protect the utility)
  2. 1 – 140.4 (Maintain a reasonable clearance...)
  3. 1 – 24D (Immediately notify the operator of damage)
- Civil Penalty - \$5,000



# Education vs Action (Safety Culture)

An aerial photograph of a town in Spotsylvania County, Virginia, showing a road and a river. The image is faded and serves as a background for the text.

# **Route 3 Widening Spotsylvania County**

## **A Design Build Project**



# The Stakeholders

## Funding and Initial Planning

American Recovery and Reinvestment Act of 2009: Funding

State Government: Authorized Local Project Administration

Local Government: Administration of Project

## Design Build Team

General Contractor: Organic construction assets and responsible for Design Build Team

Concrete Subcontractor: Curb and gutter construction assets

Utility Design Firm

Transportation Design Firm

2 X Right of Way Acquisition and Plat Design Firms

## Utility Operators

2 X Telecommunication

1 X Electric

1 X Gas

1 X Water & Sewer

# Background

Construction Plan: widen Rt. 3 for approximately 1.2 miles, relocate all existing utilities, and build a new 24 inch Ductile Iron water main

- July 2009, General Contractor wins bid for project
- October 2009, State ground breaking ceremony
- May 2010, First On-site meeting with Utility Design Firm and Utility Operators
- October 2010, Construction begins
- October 2010 – July 2011, 50%-75% of right-of-ways acquired, utilities have not been relocated, construction continues
- April 21, 2011 – First fiber line damaged





# Background Cont.

- May 24, 2011, 44 strand fiber damaged in two different locations causing a major outage
- June 1, 2011, 300 pair cable damaged causing a minor outage
- June 2, 2011, 44 strand fiber damaged causing a major outage, 900 pair pedestal found damaged (STAFF FIRST NOTIFIED)
- June 7, 2011, Advisory Committee addresses situation with General Contractor
- June 9, 2011, 50 pair cable damaged causing a minor outage
- June 14, 2011, 1 inch plastic gas service found damaged
- June 16, 2011, 300 pair cable found damaged
- June 23, 2011, 10 inch steel gas main coating damaged
- July 8, 2011, 44 strand fiber damaged causing a major outage
- July 11, 2011, 44 strand fiber damaged causing a major outage
- July 12, 2011, Locality issues a “stop work” order to the General Contractor, Staff holds an emergency meeting with all stakeholders

# Results

- 64 Cancer treatment patients had to reschedule, relocate, or did not receive treatment as a result of the fiber service outages
- Thousands of commercial and private customers lost service on multiple occasions
- Initially road construction was shut down for approximately one month but has since been shut down for an undetermined amount of time
- State political involvement
- High media visibility
- Poor planning causing project delay will ultimately lead to a failure to complete by required deadline



# What Happened?



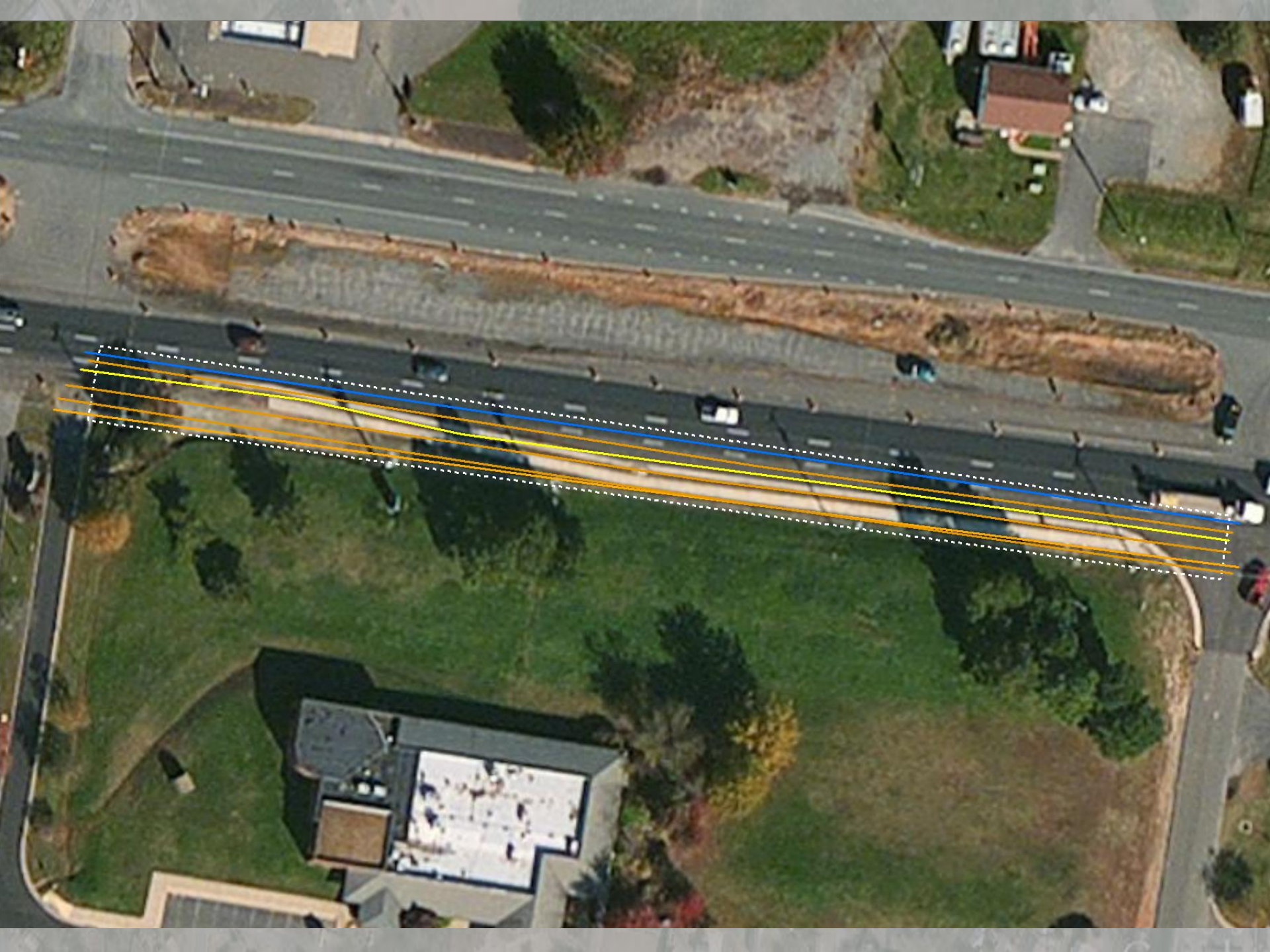




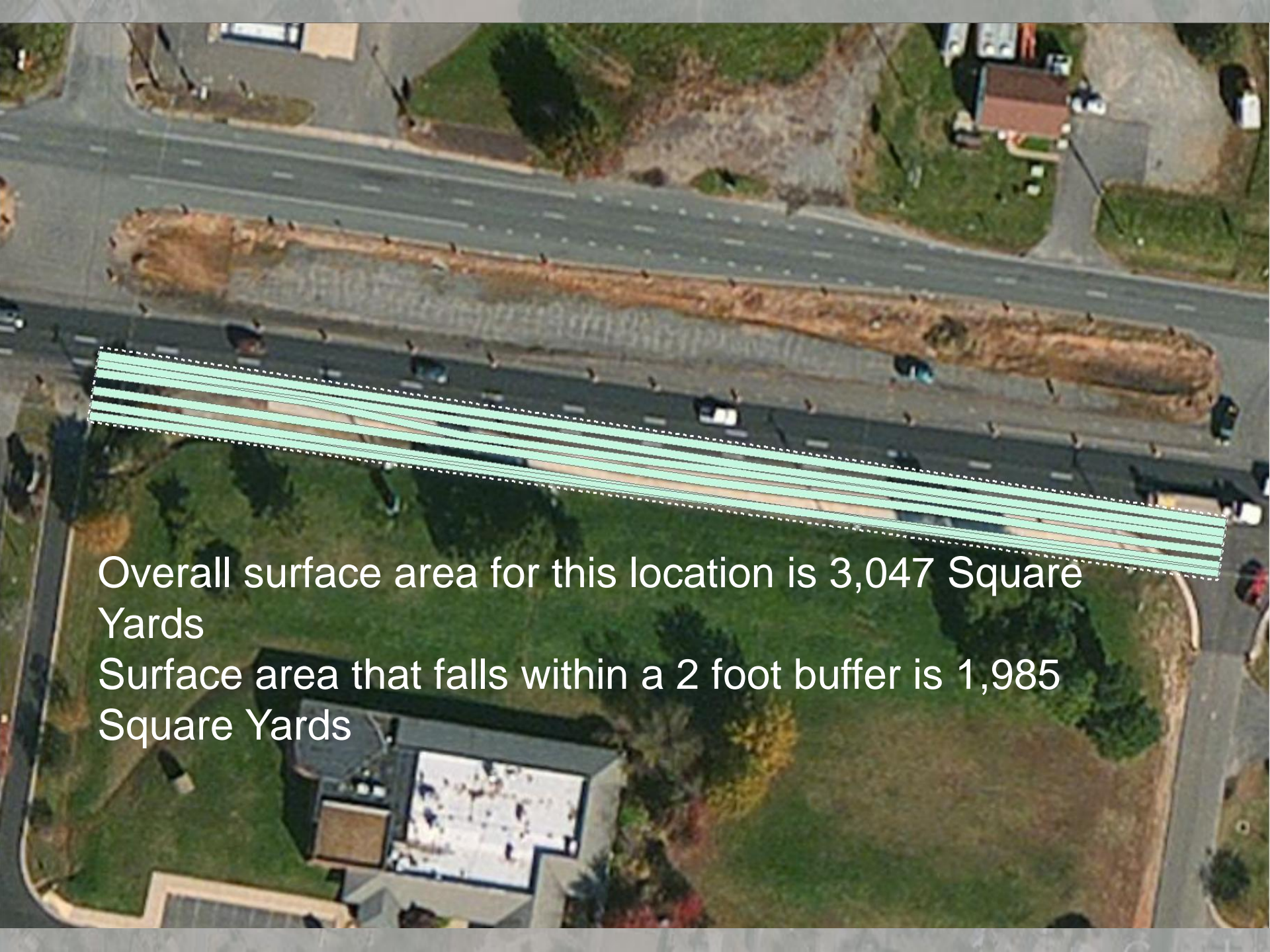












Overall surface area for this location is 3,047 Square Yards

Surface area that falls within a 2 foot buffer is 1,985 Square Yards











# Findings

- Acquisition of right of ways took longer than planned and is still not complete
- Design Build Team Senior Representative did not ensure his contractor's were completing their portion of the design process
  - Resulted in utilities in the way of construction
- General Contractor did not have a utility protection plan in place
- Foremen and Supervisors did not understand the requirements of the Underground Utility Damage Prevention Act
  - Resulted in poor decisions
- QA/QC contractors did not fully understand the requirements of the Underground Utility Damage Prevention Act
  - Resulted in no action taken when unsafe acts were being conducted
- QA/QC contractors reported directly to the General Contractor, creating conflict of interest



# Corrections

- Locality issued a “stop work” order which prevented the General Contractor from continuing with planned construction
- Locality required General Contractor to develop a comprehensive utility protection plan
- Required General Contractor to design west bound lanes with utilities relocated prior to being authorized to construct road (phase to be completed this summer)
- SCC required General Contractor to pay a civil penalty as a result of multiple probable violations, and required 100% of the company trained by Staff in English or Spanish
- General Contractor hired sub contractors to assist with utility locating and damage prevention assistance during water main construction

Between July 12, 2011 and April 1, 2012 no reported excavation related damages have occurred.



# The Project Today

As of January, 2012, the project has been put on hold to allow the locality to finalize acquisition of right of ways. Gas and Telecommunication utilities are being relocated on the Eastbound side of the project, but plans have not been established to relocate on the Westbound side. The General Contractor's deadline to complete all work is July, 2012. The General Contractor has indicated they will not begin construction on the Westbound side until all utilities are relocated. In August, 2013, the American Recovery and Reinvestment Act of 2009 funding expires.



An aerial photograph of a residential neighborhood. A wide road runs horizontally across the middle of the image. To the right of the road, a large wooded hillside rises. To the left of the road, there are several large, modern-looking buildings, possibly schools or community centers. The overall scene is a mix of urban development and natural landscape.

# Questions