



# CROWELL ROAD INTERSECTION DESIGN PROJECT

---

Main Street/Crowell Road/Queen Anne Road/ Depot Road

---



CHATHAM | BOARD OF SELECTMEN

AUGUST 15, 2017



HOWARD STEIN HUDSON

Engineers + Planners





# Agenda

CROWELL ROAD INTERSECTION DESIGN PROJECT

- Project Area
- Project History
- Existing Field Observations
- 2010 Design Concepts (FST)
- 2017 Design Concepts (HSH)
- Next Steps/Process
- Questions and Comments

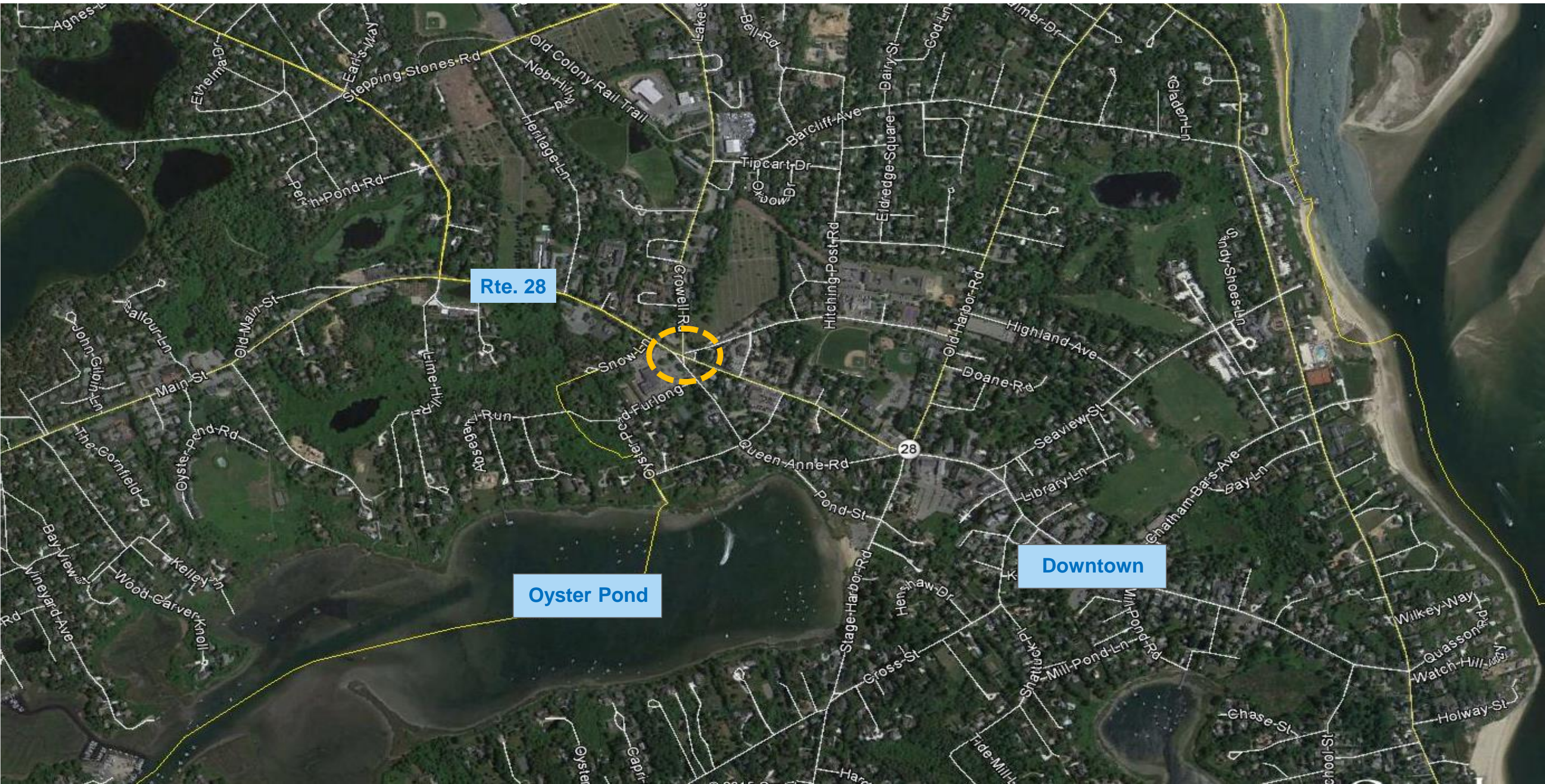






# Project Area

CROWELL ROAD INTERSECTION DESIGN PROJECT

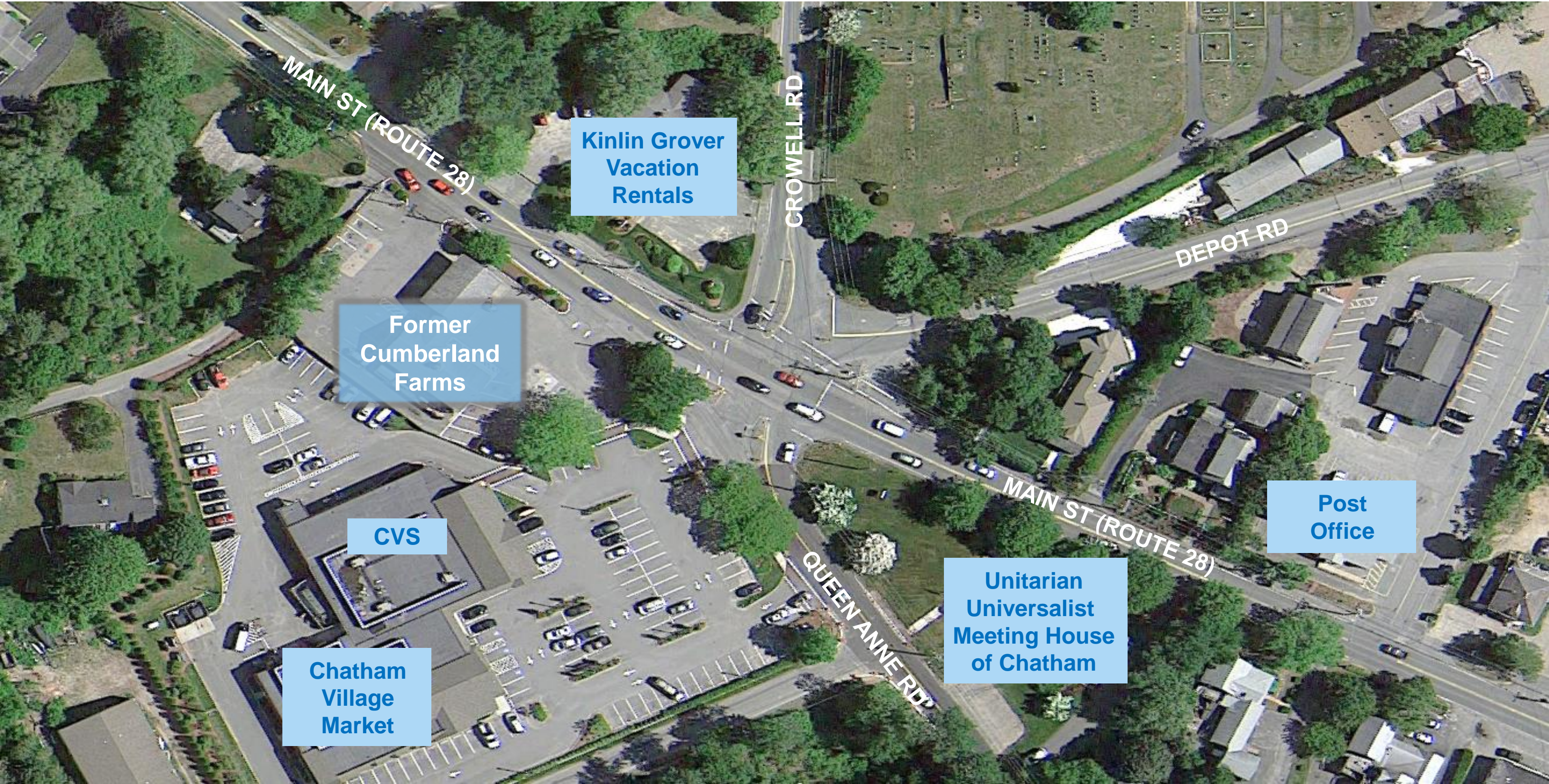






# Project Area

CROWELL ROAD INTERSECTION DESIGN PROJECT



**Kinlin Grover  
Vacation  
Rentals**

**Former  
Cumberland  
Farms**

**CVS**

**Chatham  
Village  
Market**

**Unitarian  
Universalist  
Meeting House  
of Chatham**

**Post  
Office**





# Project History

CROWELL ROAD INTERSECTION DESIGN PROJECT



## Town's Comprehensive Plan (2003)

- **“Work with the state Highway Department to include improvements proposed by the town in the reconstruction of Rte. 28”:**
  - Safety improvements at intersection with Crowell Road
  - Bicycle and ADA-compliant pedestrian improvements
  - Drainage improvements
  - Vehicular access control
  - Streetscape improvements
  
- **Adopted unanimously at Town Meeting**







# Project History

CROWELL ROAD INTERSECTION DESIGN PROJECT

- **Planning Process**
  - Public Information Meeting – Feb. 19, 2009
  - Proposed Alternative Discussion – Feb. 11, 2010
  - Public Outreach Meeting #1 – Jun. 22, 2015
  - Abutter Interviews – Jun. 2015
- **MassDOT Project Initiation Form (PIF) – Feb. 2013**
- **Funded for construction through the Transportation Improvement Program (TIP) for 2021**
- **Town of Chatham and MassDOT Agency Coordination Meetings**
  - May 5, 2015
  - January 18, 2017

## Crowell Road/ Route 28 Intersection Improvements

Public Information Meeting  
February 19, 2009

### Crowell Road/Main Street Route 28 Intersection Project Town of Chatham, Massachusetts



PROPOSED ALTERNATIVES DISCUSSION  
February 11, 2010

ENGINEERS  
**FST**  
SINCE 1957



HOWARD STEIN HUDSON





# FIELD OBSERVATIONS

## Main Street Looking East

CROWELL ROAD INTERSECTION DESIGN PROJECT

Extensive Queuing







# FIELD OBSERVATIONS

## Main Street Looking East

CROWELL ROAD INTERSECTION DESIGN PROJECT

**No Left-turn Lanes**  
**Signal Indication Visibility**





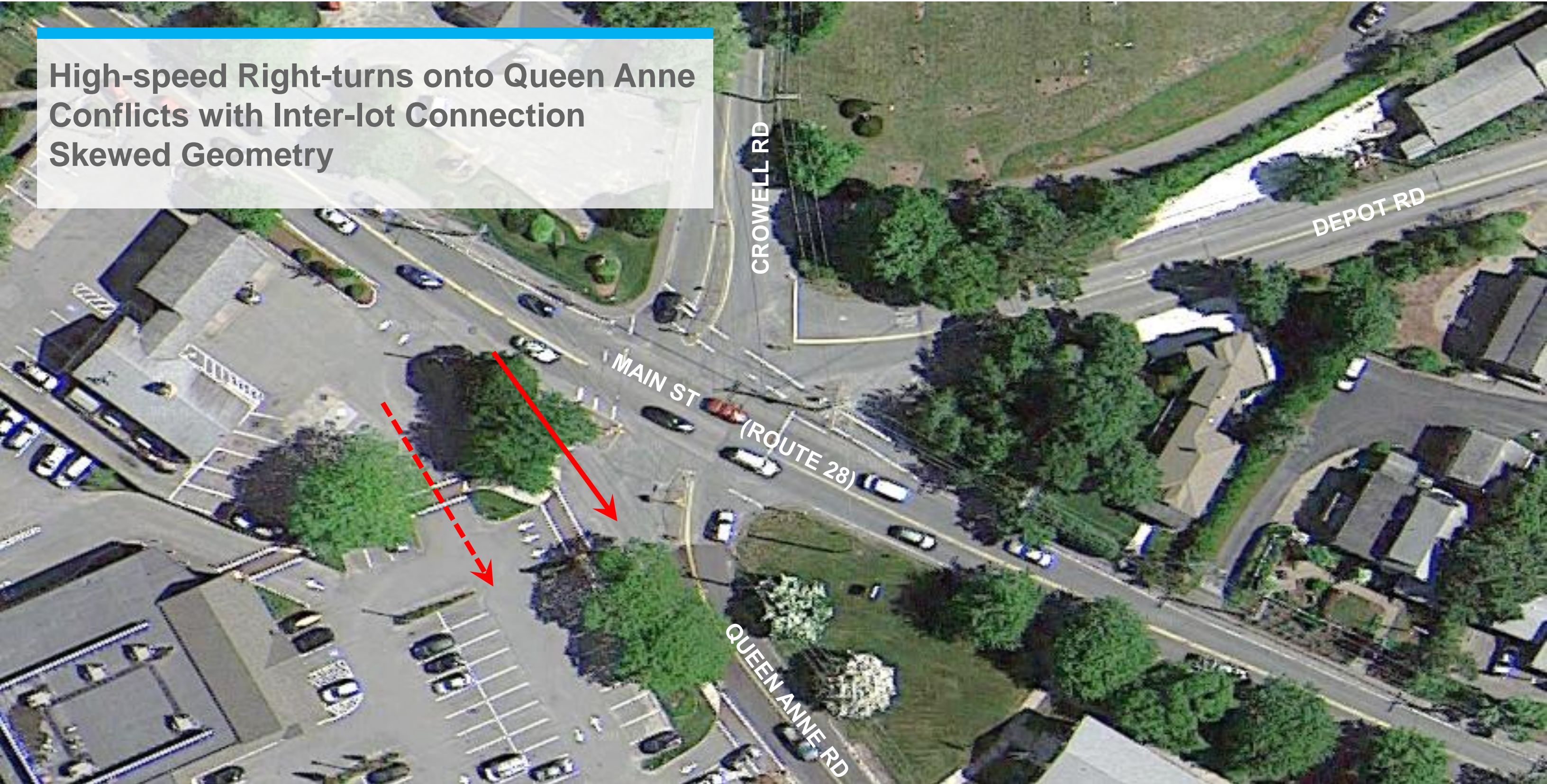


FIELD OBSERVATIONS

# Aerial View

CROWELL ROAD INTERSECTION DESIGN PROJECT

**High-speed Right-turns onto Queen Anne  
Conflicts with Inter-lot Connection  
Skewed Geometry**





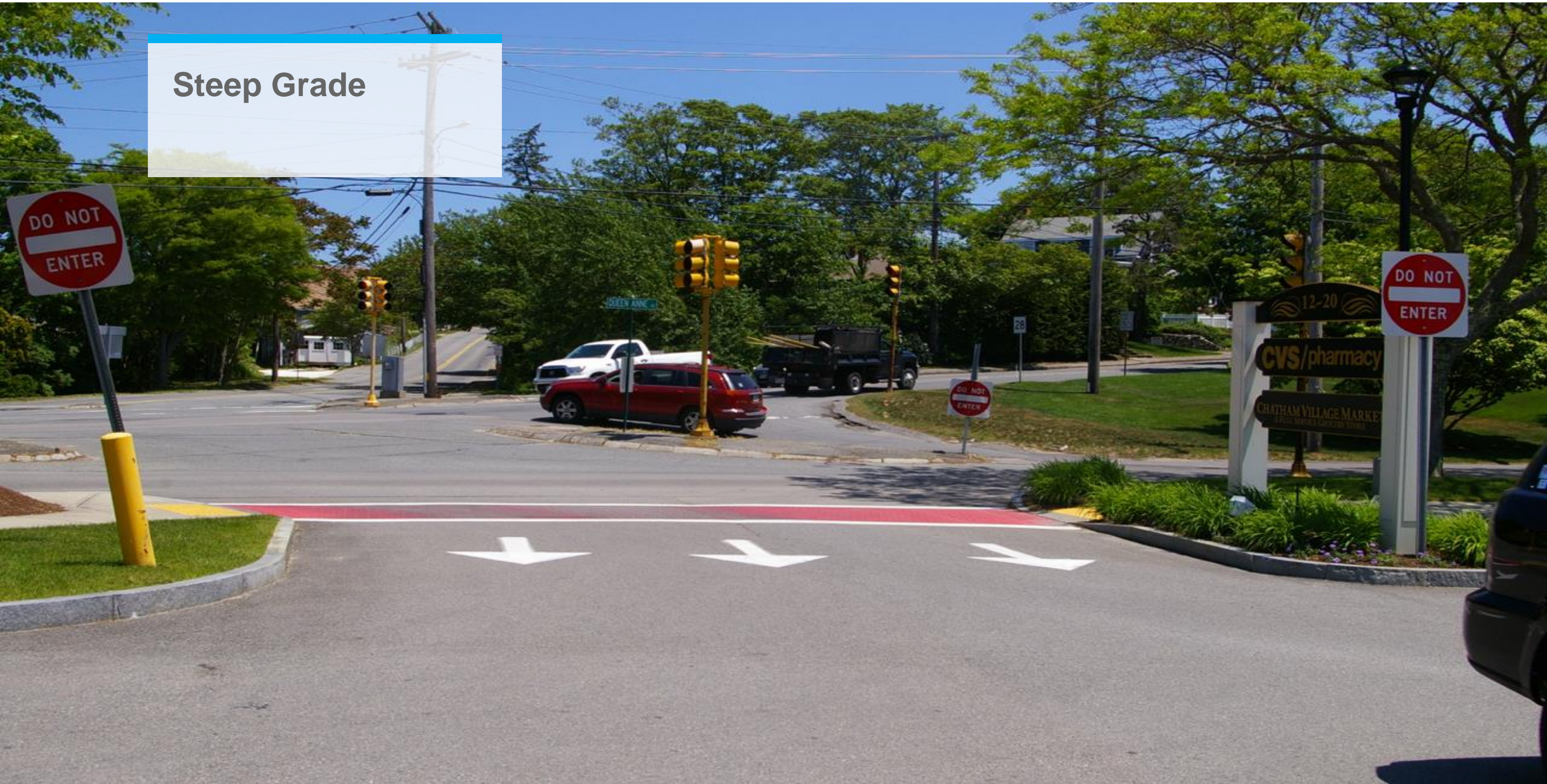


FIELD OBSERVATIONS

# Chatham Village Market/CVS Looking North

CROWELL ROAD INTERSECTION DESIGN PROJECT

Steep Grade







# FIELD OBSERVATIONS

## Main Street Looking West

CROWELL ROAD INTERSECTION DESIGN PROJECT

No Left-turn Lanes







# FIELD OBSERVATIONS

## Main Street Looking West

CROWELL ROAD INTERSECTION DESIGN PROJECT

No Southern Sidewalk  
Narrow Shoulder  
Steep Grade  
Signal Visibility  
Queuing Conditions







# FIELD OBSERVATIONS

## Depot Road Looking West

CROWELL ROAD INTERSECTION DESIGN PROJECT

### Emergency Vehicle Access







# FIELD OBSERVATIONS

## Pedestrian Crossing at Main Street

CROWELL ROAD INTERSECTION DESIGN PROJECT

**No Accessible Ramps  
No Pedestrian Phase/  
Signal Equipment**







# FIELD OBSERVATIONS

## Crowell Road Looking South

CROWELL ROAD INTERSECTION DESIGN PROJECT

Limited Pedestrian Accommodations  
Raised Islands  
Signal Indications







# FIELD OBSERVATIONS

## Signal Equipment

CROWELL ROAD INTERSECTION DESIGN PROJECT



**Pavement Condition**  
**Antiquated Signal**  
**Equipment**





# FIELD OBSERVATIONS

## Cyclists on Main Street

CROWELL ROAD INTERSECTION DESIGN PROJECT

Limited Bicycle  
Accommodations

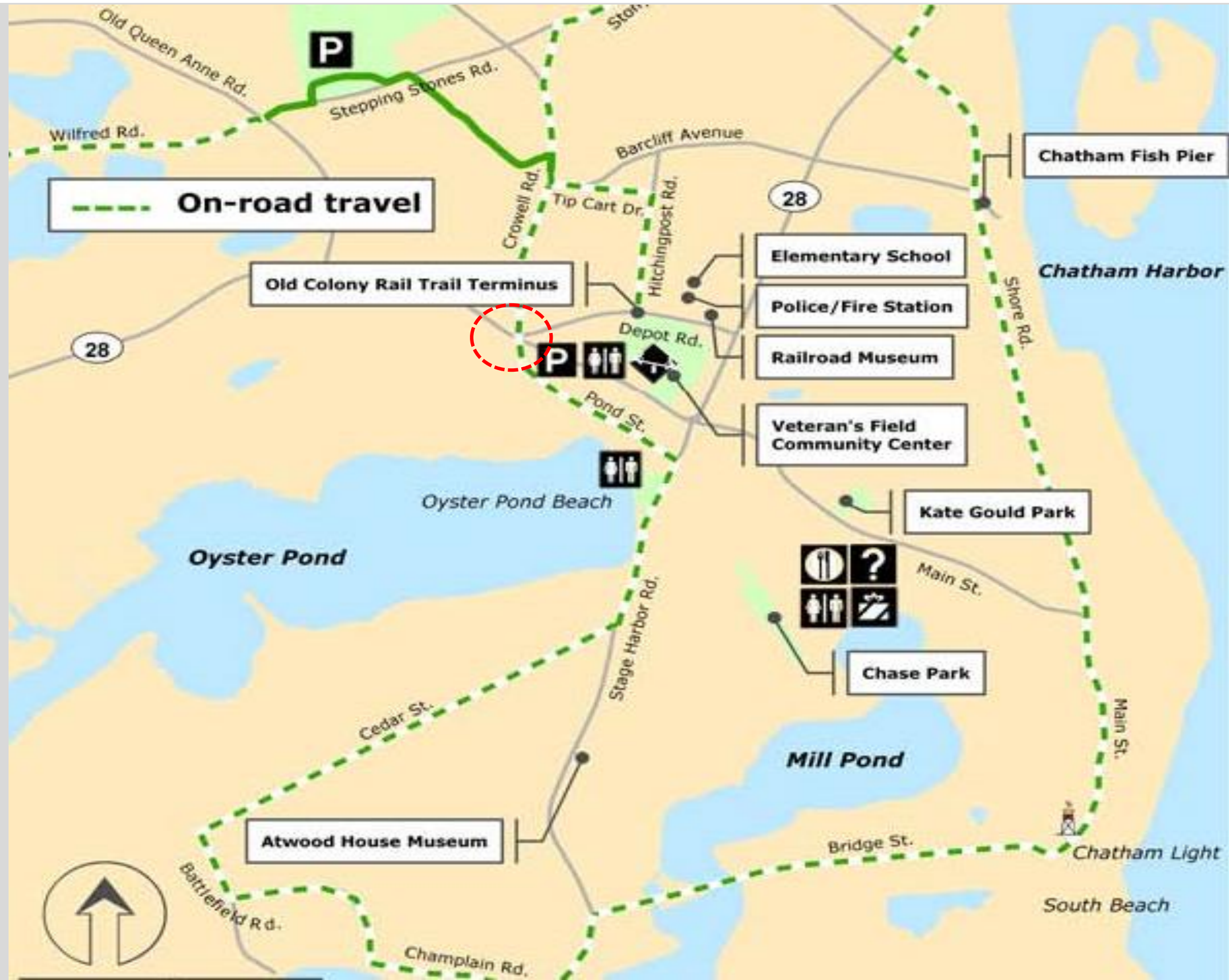






# Bicycle Network

CROWELL ROAD INTERSECTION DESIGN PROJECT







# 2010 Design Concepts

## FST Design Concepts



**HOWARD STEIN HUDSON**

Engineers + Planners



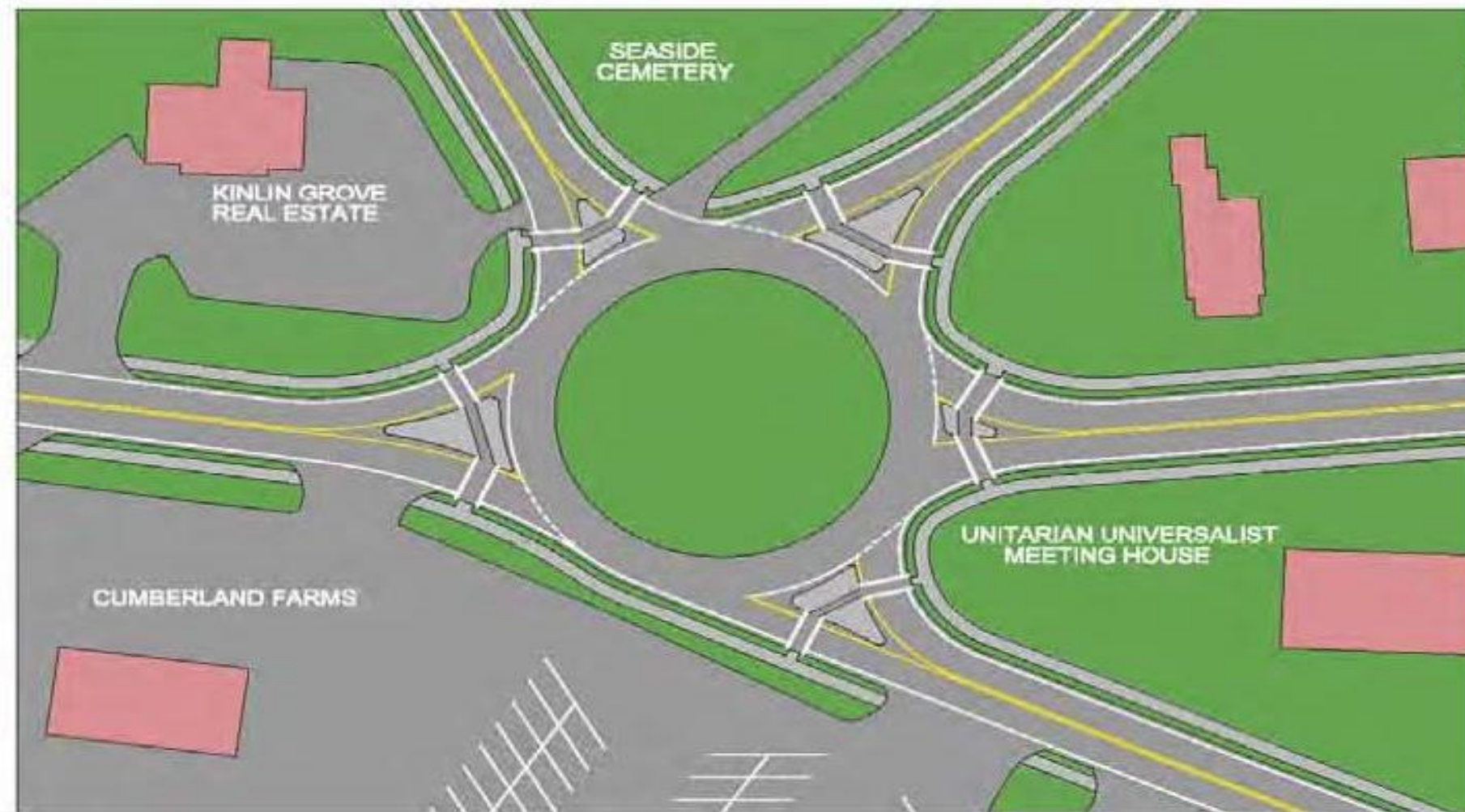


# 2010 Design Concept

CROWELL ROAD INTERSECTION DESIGN PROJECT



## Roundabout Alternative 1



ENGINEERS  
**FST**  
SINCE 1914

Feb. 11, 2010



HOWARD STEIN HUDSON





# 2010 Design Concept

CROWELL ROAD INTERSECTION DESIGN PROJECT



## Roundabout Alternative 2 (With Smaller Radii)



ENGINEERS  
**FST**  
SINCE 1918

Feb. 11, 2010



HOWARD STEIN HUDSON





# 2010 Design Concept

CROWELL ROAD INTERSECTION DESIGN PROJECT



## Upgraded Signal Alternative 1



EXTENSIVE FIRM  
**FST**  
Since 1914

Feb. 11, 2010



HOWARD STEIN HUDSON





# 2010 Design Concept

CROWELL ROAD INTERSECTION DESIGN PROJECT



## Upgraded Signal Alternative 2



ENGINEERS  
**FST**  
Since 1918

Feb. 11, 2010



HOWARD STEIN HUDSON





# 2017 Design Concepts

HSH Design started in 2014



**HOWARD STEIN HUDSON**

Engineers + Planners





# HSH 2014 Data Collection

CROWELL ROAD INTERSECTION DESIGN PROJECT

- **Survey Information**
- **Turning Movement Counts (TMCs)**
  - Thursday, Jun. 19, 2014
  - Saturday, Jun. 21, 2014
  - Saturday, Aug. 23, 2014
  - Saturday, Jul. 25, 2015
- **Automatic Traffic Recorder (ATRs)**
  - 3-day: Jun. 19-21, 2014
- **Observations**
  - On-going



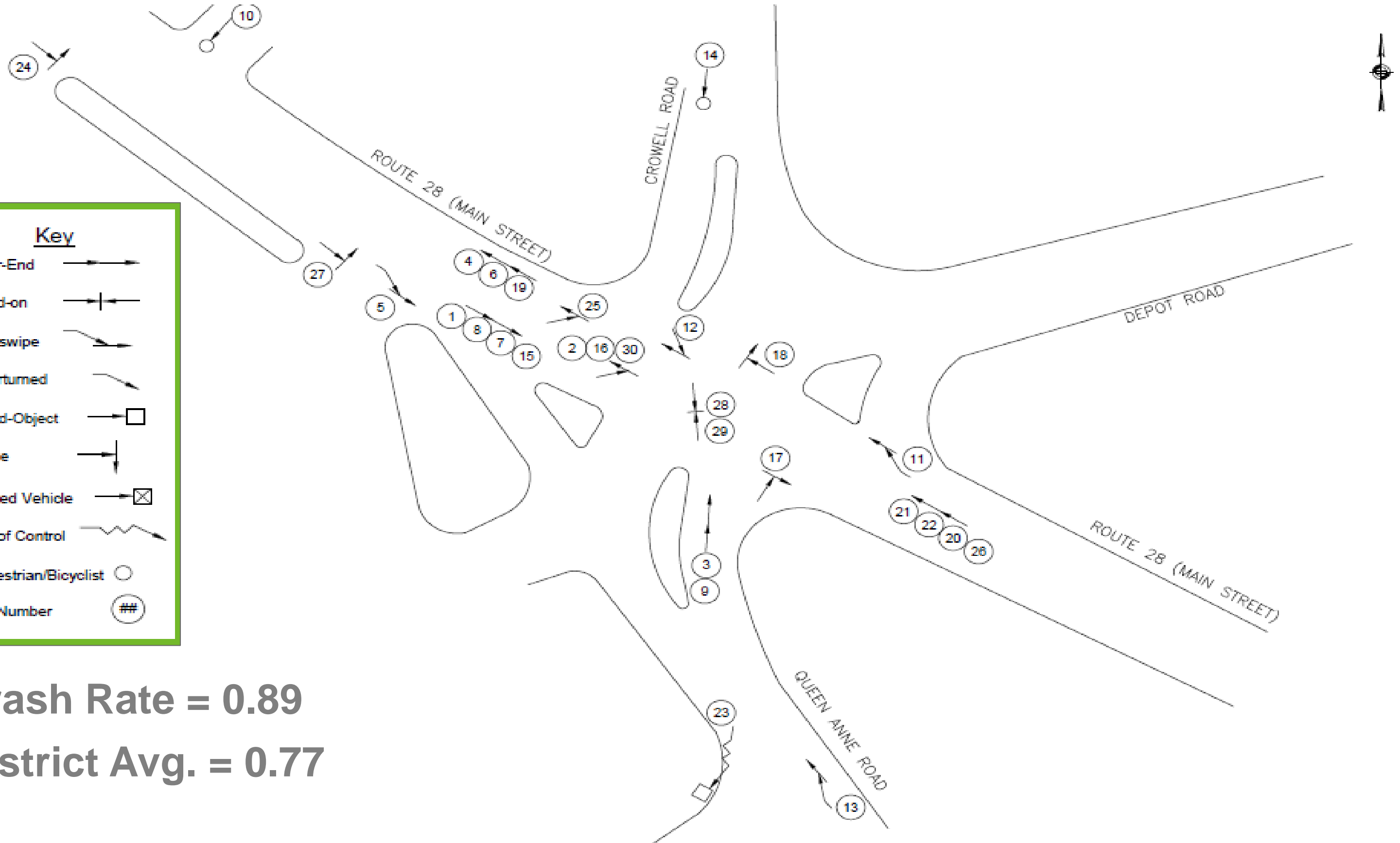
HOWARD STEIN HUDSON





# Collision Diagram (01/2009 – 08/2014)

CROWELL ROAD INTERSECTION DESIGN PROJECT



**Crash Rate = 0.89**

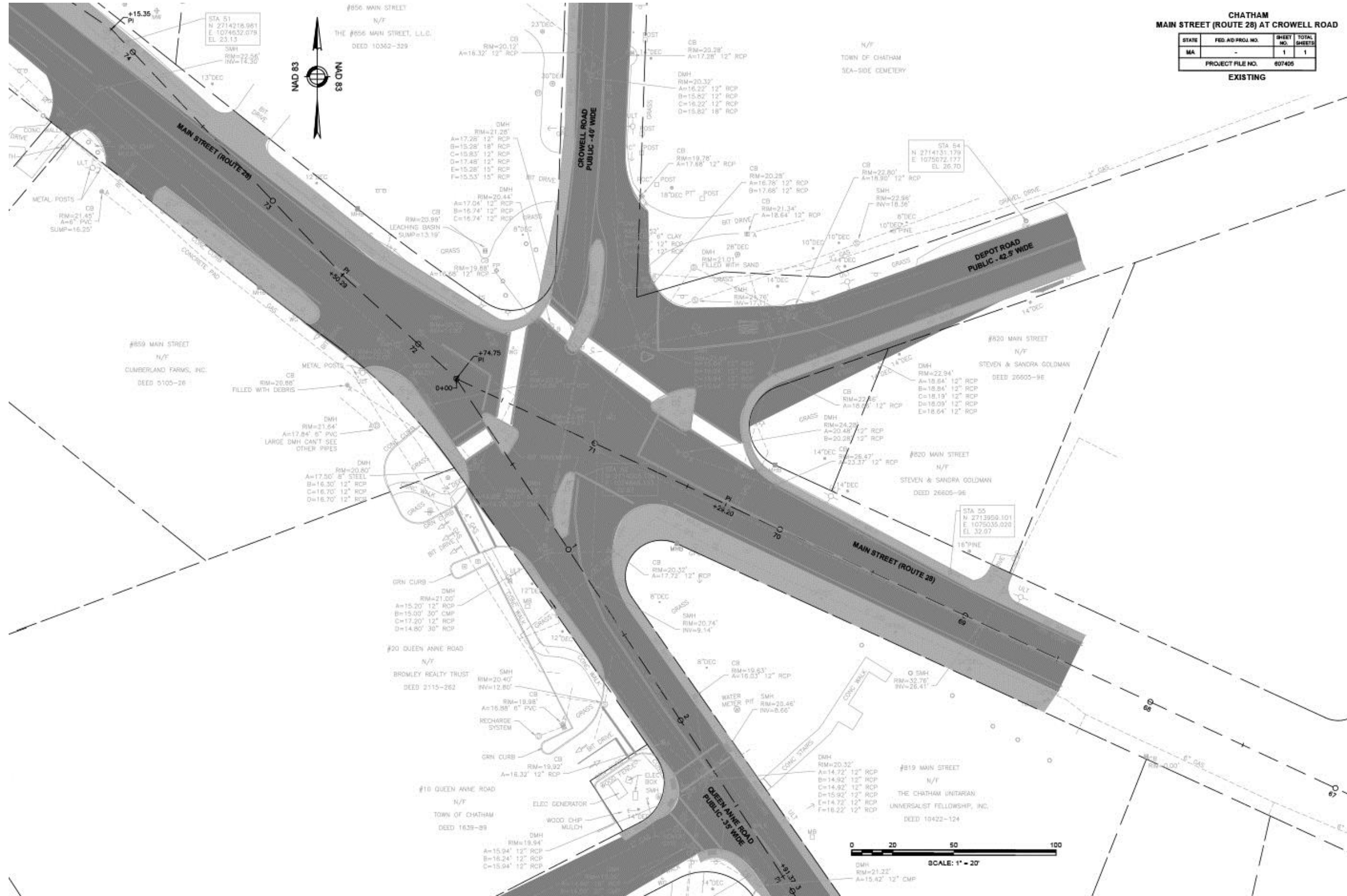
**District Avg. = 0.77**





# Alternative 1 – No-Build

## CROWELL ROAD INTERSECTION DESIGN PROJECT







# Alternative 1 – No-Build

---

CROWELL ROAD INTERSECTION DESIGN PROJECT

- **The status quo**
- **No changes to:**
  - Roadway geometry
  - Signal equipment
  - Pedestrian accommodations
- **All documented concerns remain as today**

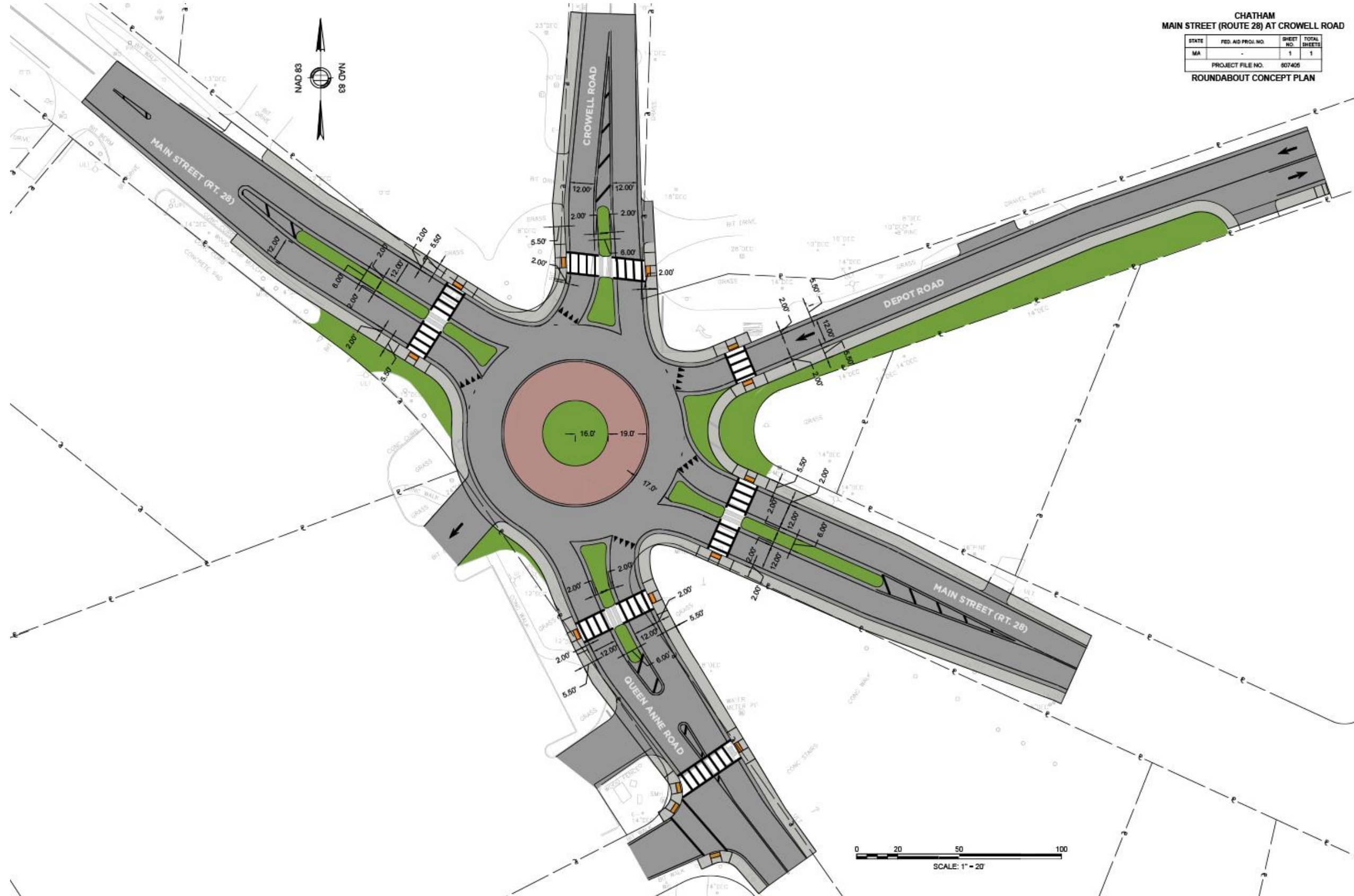






# Alternative 2 – Roundabout

CROWELL ROAD INTERSECTION DESIGN PROJECT







# Alternative 2 – Roundabout

---

CROWELL ROAD INTERSECTION DESIGN PROJECT

- **Site challenges:**
  - Site slopes up towards Depot Road
  - Drainage issues
  - Significant takings required on cemetery and church land
  - Major utility relocations required
- **Operational challenges:**
  - Complex five-legged design
  - Depot Road becomes one way
  - Large vehicles cannot make all moves

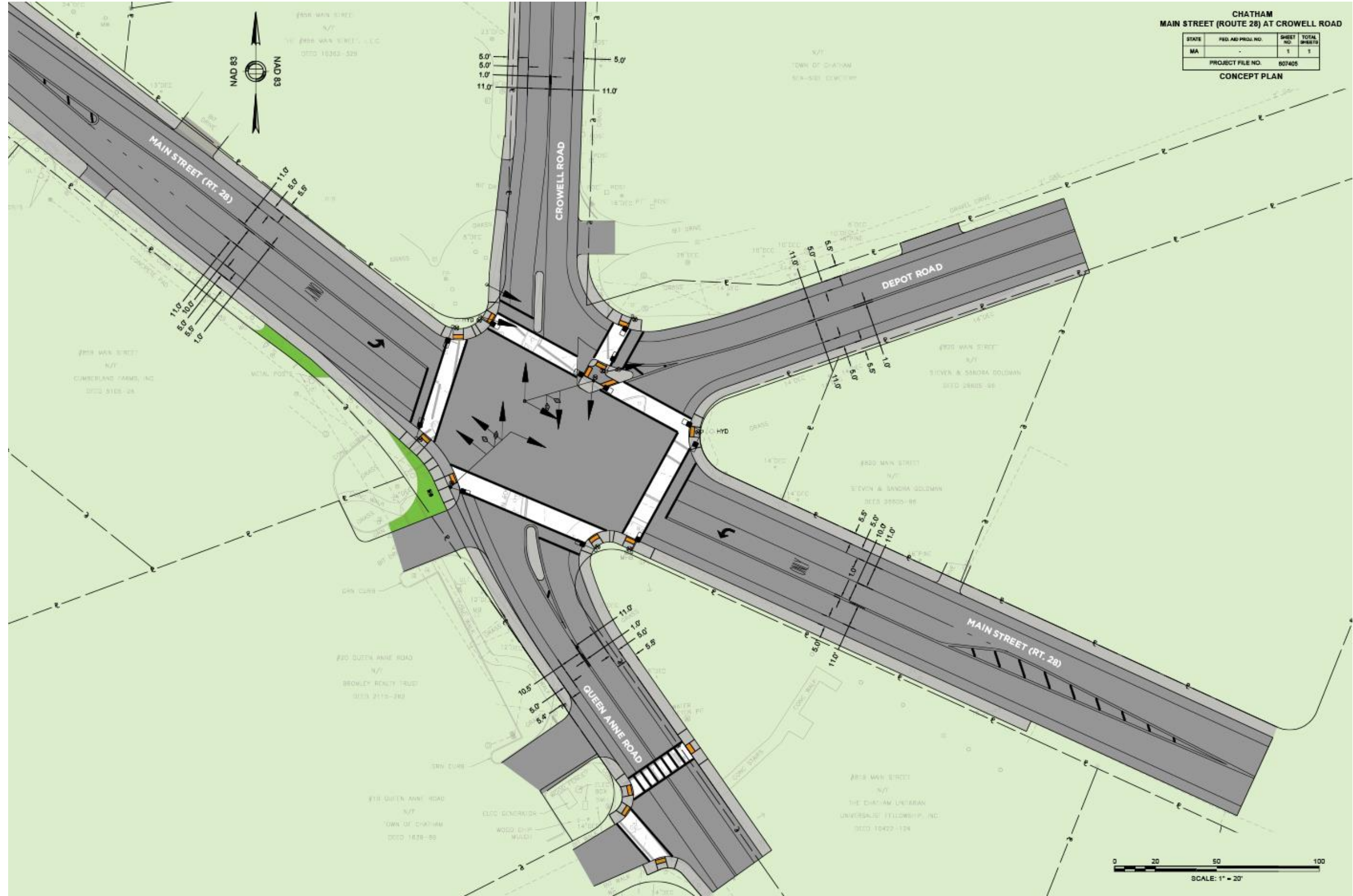






# Alternative 3 – New Signal

CROWELL ROAD INTERSECTION DESIGN PROJECT







# Alternative 3 – New Signal

---

CROWELL ROAD INTERSECTION DESIGN PROJECT

- **Intersection enhancements:**
  - Speed control for turn to Queen Anne Road
  - Left-turn phases for both directions of Route 28
  - Signal preemption for CFD possible
  - Full replacement of signals
  - Introduction of new:
    - Bicycle accommodations
    - Accessible pedestrian accommodations
- **Operational/site challenges:**
  - Some permanent/temporary easements required
  - Mast arms needed for left-turn lanes
  - Motorist delay during pedestrian phase



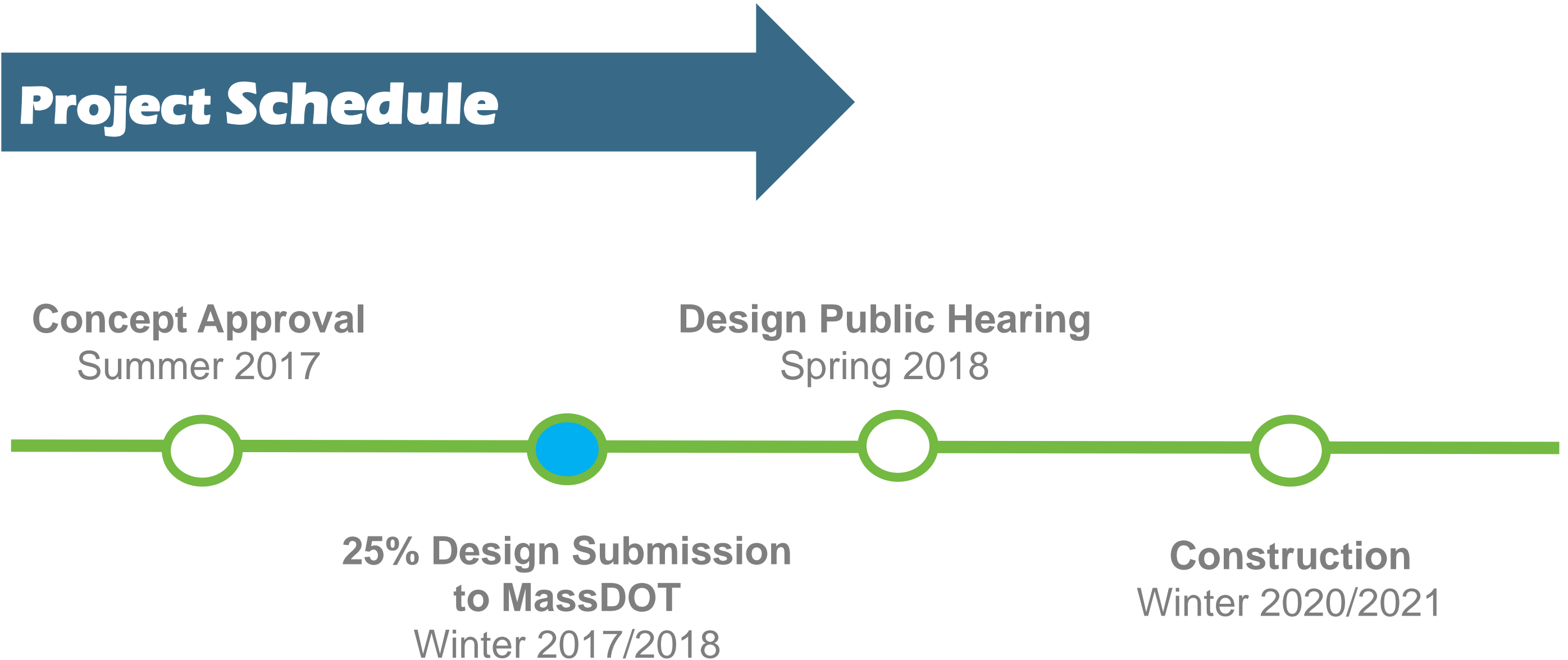




# Next Steps

CROWELL ROAD INTERSECTION DESIGN PROJECT

## Project Schedule







# Ongoing Public Involvement

---

CROWELL ROAD INTERSECTION DESIGN PROJECT

- **August 15 – September 15, 2017 comment period**
  - Web survey based on comments received tonight
  
- **October 2017 – BOS meeting:**
  - Discussion of public comments
  - Discussion of design refinements
  - BOS recommendation on concept for 25% design
  
- **MassDOT 25% Design Public Hearing post 25% submission**







# Questions and Comments

CROWELL ROAD INTERSECTION DESIGN PROJECT

[www.chathamcrowellroad.info](http://www.chathamcrowellroad.info)

**Contact us:**

**Nathaniel Cabral-Curtis**, *Public Involvement Specialist*

Howard Stein Hudson

11 Beacon Street, Suite 1010

Boston, MA 02108

[ncabral-curtis@hshassoc.com](mailto:ncabral-curtis@hshassoc.com)

(617) 482-7080 x236



**HOWARD STEIN HUDSON**

Engineers + Planners





# Thank you

---

CROWELL ROAD INTERSECTION DESIGN PROJECT



HOWARD STEIN HUDSON