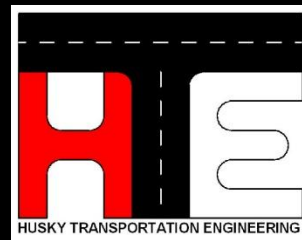




Department of  
**CIVIL AND  
ENVIRONMENTAL  
ENGINEERING**  
AT NORTHEASTERN UNIVERSITY



# Husky Transportation Engineering

An Evaluation of Multi-Modal Alternatives for  
Chappaquiddick Road & Dike Bridge Road

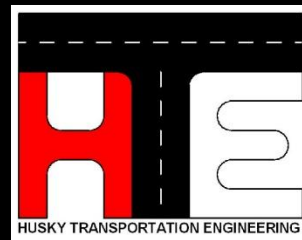
# AGENDA

1. Qualifications
2. Why we are here
3. Methodology
4. Alternative Designs
  - Existing Conditions
  - Proposed Improvements
5. Question & Answer Session



Chappaquiddick Island, Edgartown, MA  
[www.skypic.com/ma/8-4957.jpg](http://www.skypic.com/ma/8-4957.jpg)

# QUALIFICATIONS



- HTE Team

- Adam Blaser
- Daniel Curley
- Heather Georgallas
- Henry Nsang
- Michael Pritula

- 8+ Years civil engineering/design experience on co-op

- International experience evaluating sustainable transportation systems in The Netherlands

- Daniel Dulaski, PhD, P.E., Faculty Advisor

- 17 years of experience

- Private, public, and academic
  - Civil engineering
  - Transportation planning and design

# WHY WE ARE HERE

- Objective view
- Existing facilities
- Residents
- Why is this important?



# METHODOLOGY

- Where did we start?
- Approach
- Environmental Impact
- The Netherlands Safety Design Principles



Chappy Ferry, Edgartown, MA  
[http://worldsbestbeachtowns.com/beachtown-images/Chappy\\_Ferry.jpg](http://worldsbestbeachtowns.com/beachtown-images/Chappy_Ferry.jpg)



# METHODOLOGY

## The Netherlands Safety Design Principles

1. Functionality
2. Homogeneity
  - Mass
  - Velocity
  - Volume
3. Recognizability
4. Forgivingness
5. State of Awareness



Delft, The Netherlands

# EXISTING CONDITIONS

- Prior land surveys
  - Chappaquiddick Rd (1995)
  - Dike Bridge Rd (2009)
- Field work
  - Site visit (1/27 – 1/28)
- Local resources



Chappaquiddick Road, Edgartown, MA



Chappaquiddick Road, Edgartown, MA

# EXISTING CONDITIONS

- Ferry Operations
- Chappaquiddick Rd Ferry Parking
- Bike/pedestrian accommodations
- Chappaquiddick Rd/Dike Bridge Rd Intersection
- Dike Bridge Parking



<http://media.rd.com/rd/images/rdc/mag0807/cape-cod-chappaquiddick-ferry-marthas-yard-ss.jpg>



Chappaquiddick Road, Edgartown, MA



# EXISTING CONDITIONS

## Existing Martha's Vineyard Facilities



[www.mvtime.com/2009/08/04/bike-paths.png](http://www.mvtime.com/2009/08/04/bike-paths.png)

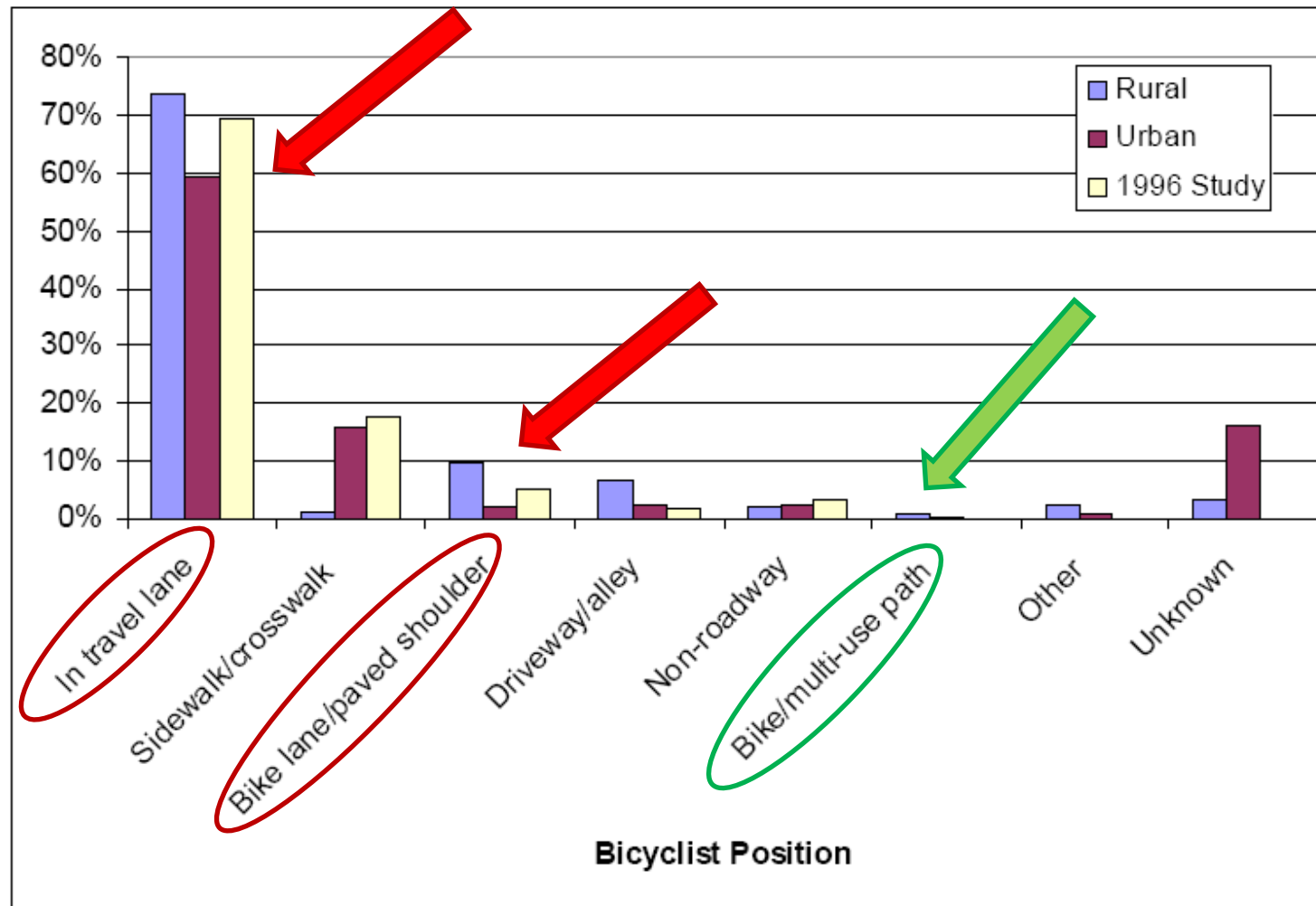
# ON-SITE CONSTRAINTS

- Lane Widths
- Right-of-Way
- Natural resources
- Vehicles: 25+ mph
- Bikes: 10+ mph
- Pedestrians: 4-10 mph

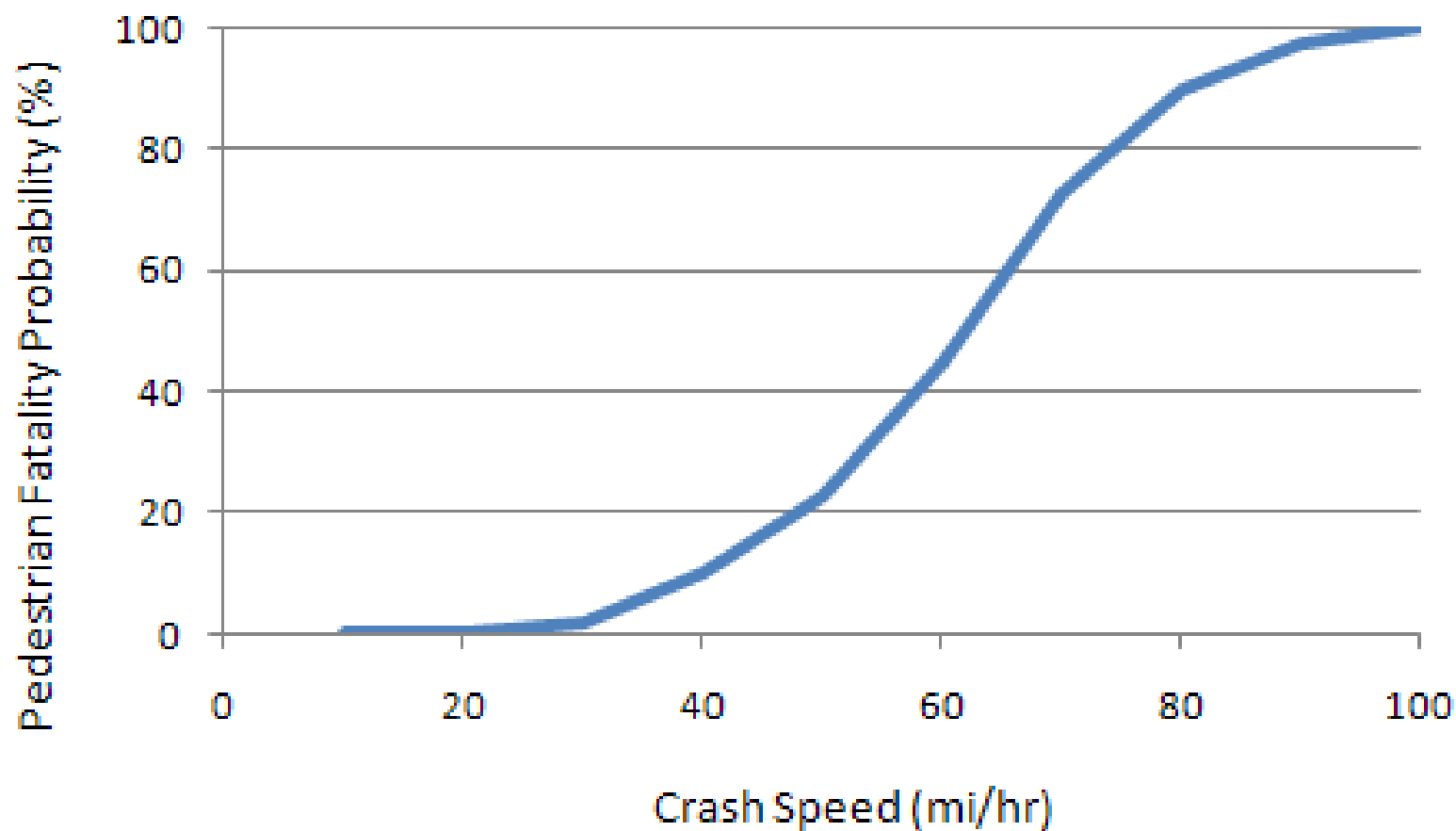


Chappaquiddick Road, Edgartown, MA

# DESIGN CRITERIA



# DESIGN CRITERIA





# CONSIDERED OPTIONS

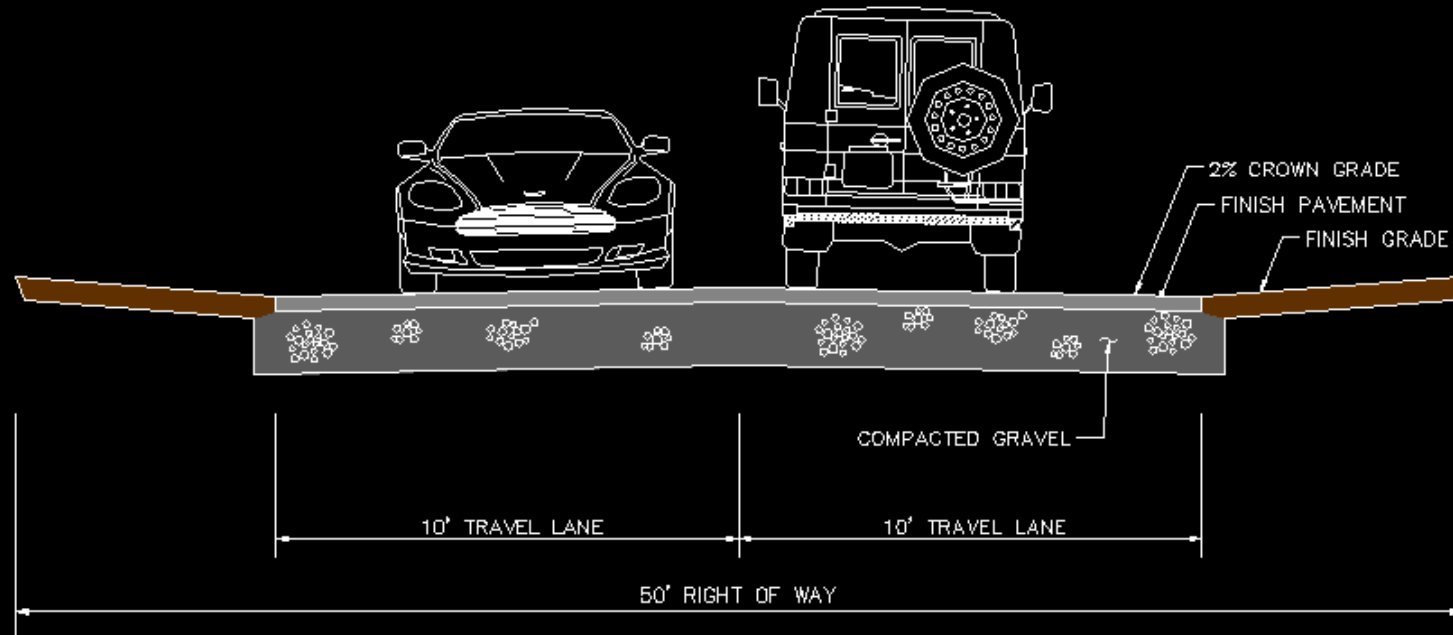
- Bicycle Accommodations

1. “Do Nothing”
2. “Sharrows”
3. Separated Bike Lanes
4. Off road mixed-use path

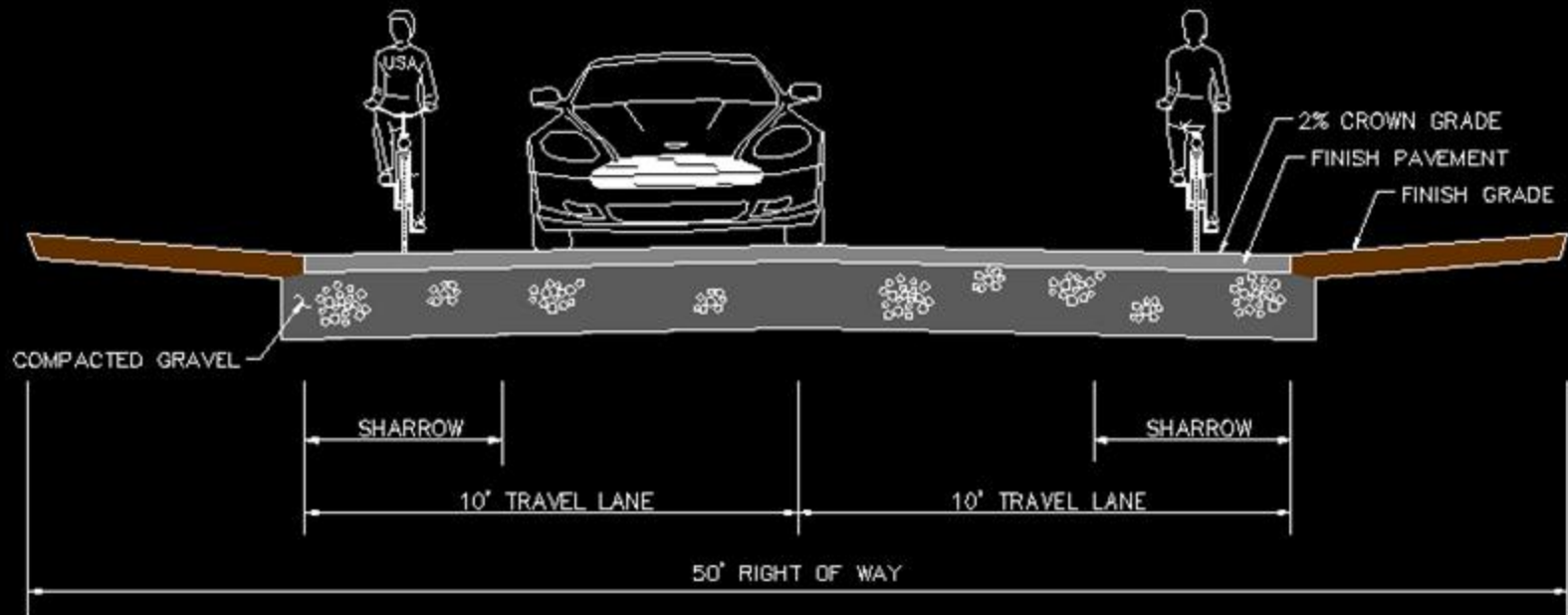


<http://fitnessblog.projo.com/Great%20Swamp%20-%20South%20County%20Bike%20Path.JPG>

# "DO NOTHING"



# "SHARROWS"

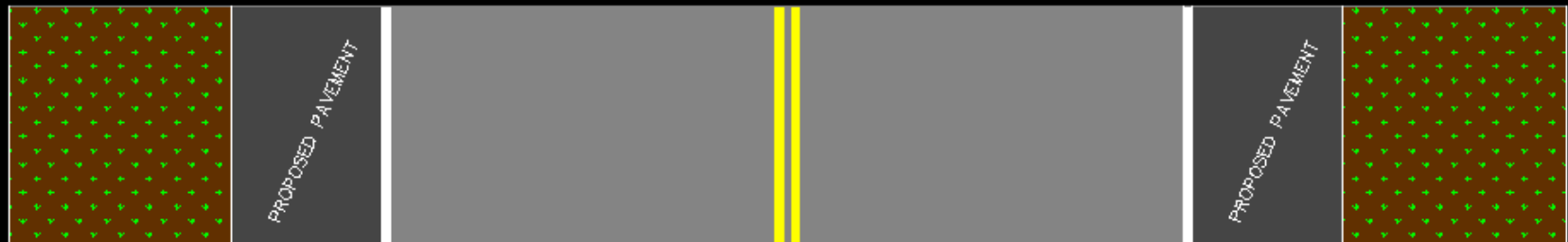
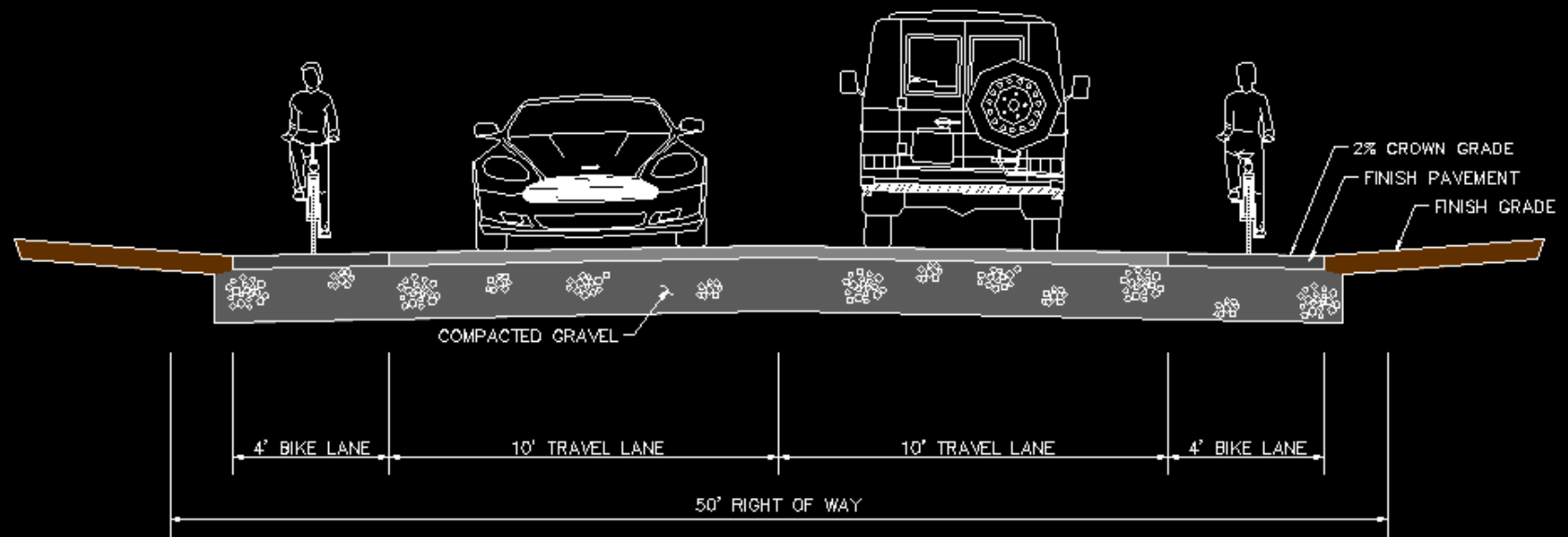


# "SHARROWS"





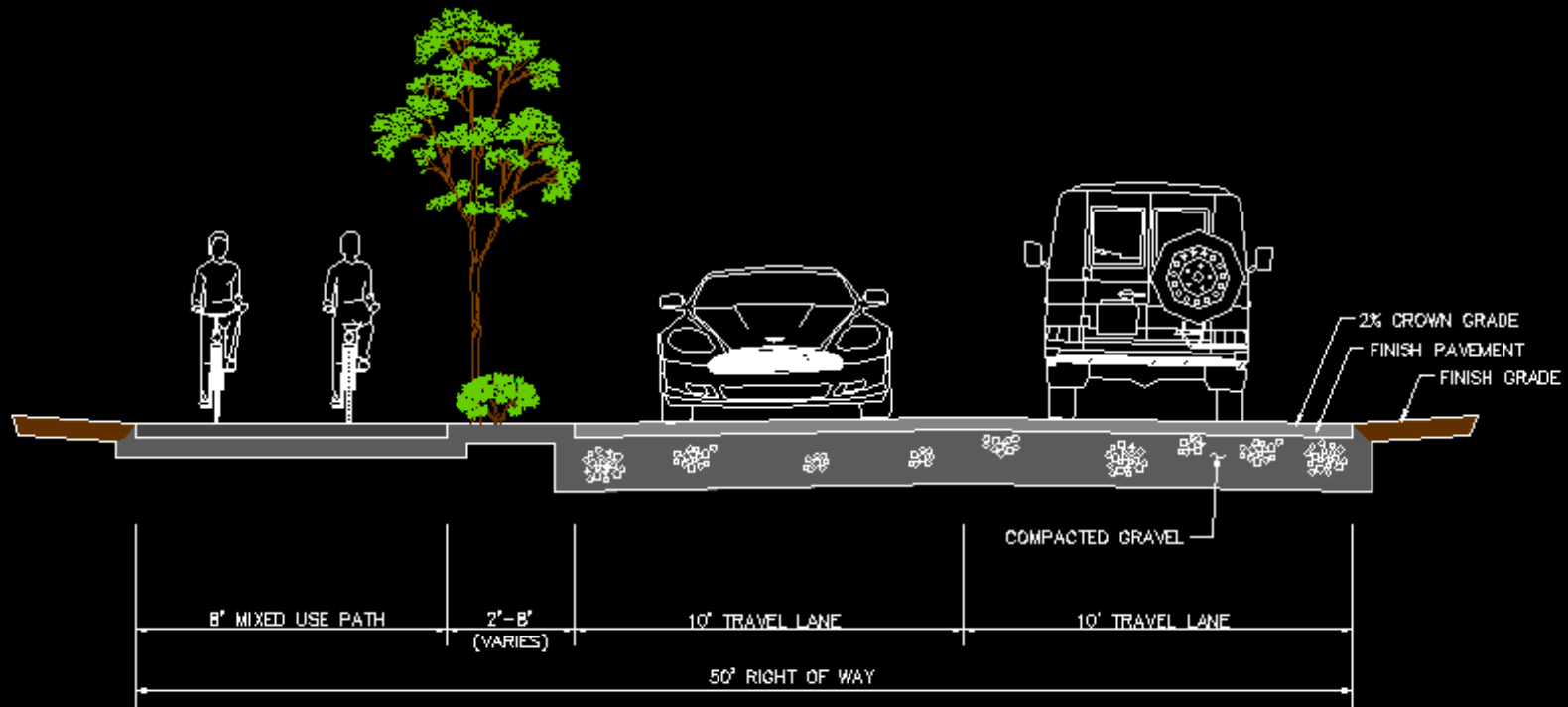
# DEDICATED BIKE LANE



# DEDICATED BIKE LANE



# MIXED-USE PATH



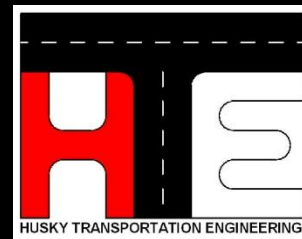


# MIXED-USE PATH





# RECOMMENDED ALTERNATIVE DECISION MATRIX



	Do Nothing	Sharrows	Separated Bike Lanes	Off-Road Mixed-Use Path
Functionality			X	X
Homogeneity				<b>X</b>
Recognizability			X	X
Forgivingness				<b>X</b>
State of Awareness	X	X	X	X

# RECOMMENDED ALTERNATIVE

## Concept Drawings – Off Road





# RECOMMENDED ALTERNATIVE

## Concept Drawings – Off Road





# RECOMMENDED ALTERNATIVE

## Concept Drawings – Off Road





# EXISTING CONDITIONS

- Ferry Operations / Ferry Parking
  - Operational Concerns
  - Contraflow Traffic
  - Extended Seasonal Queues
  - Parking Facilities

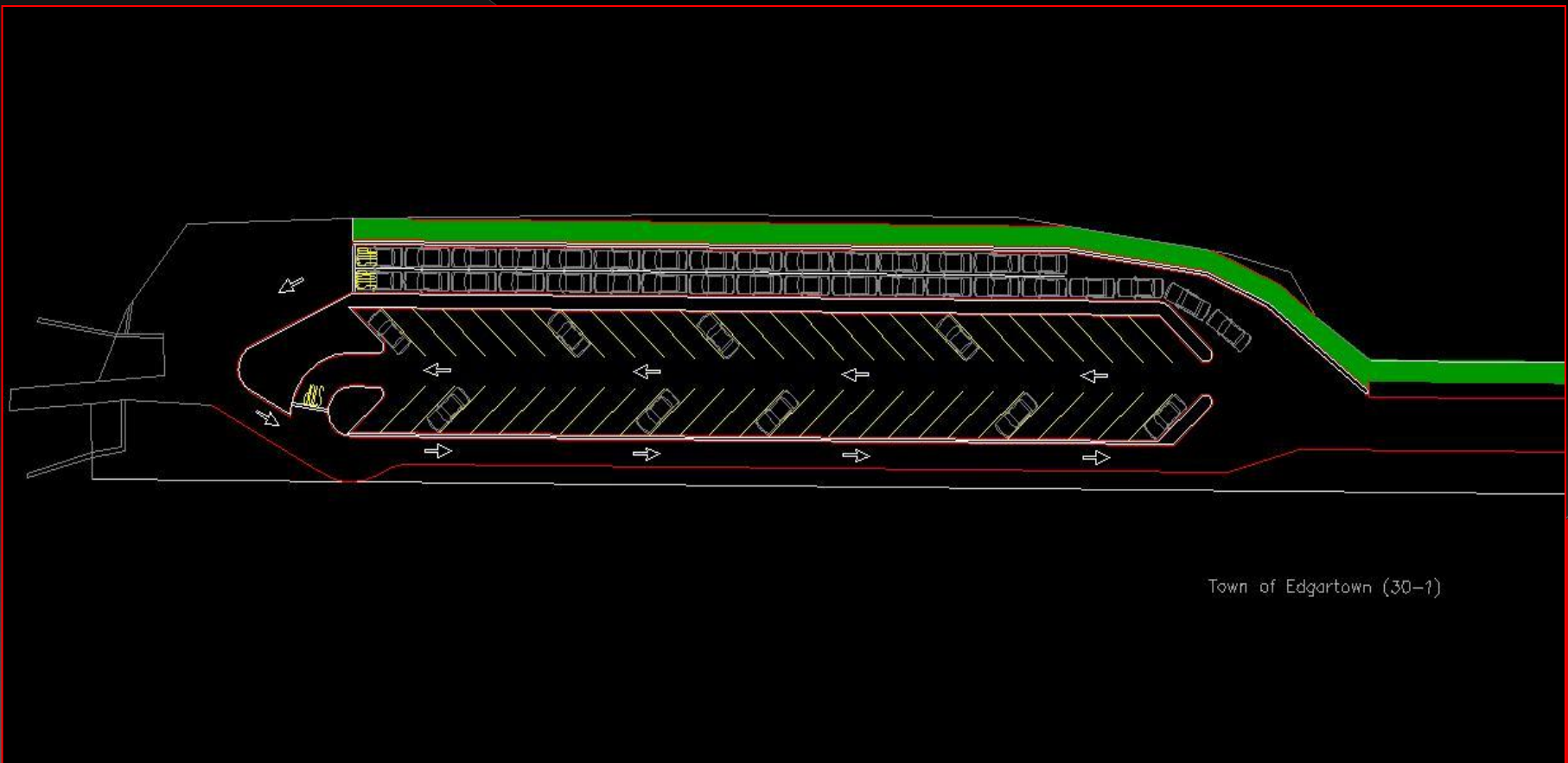


# EXISTING CONDITIONS



# CONSIDERED OPTIONS

- Ferry Operations / Ferry Parking





# REDUCED SEASONAL QUEUES





# EXISTING CONDITIONS

- Chappaquiddick Rd – Dike Bridge Rd Intersection
- Operational Concerns
- Higher Speeds
- Excessive Pavement
- Impaired Site Lines



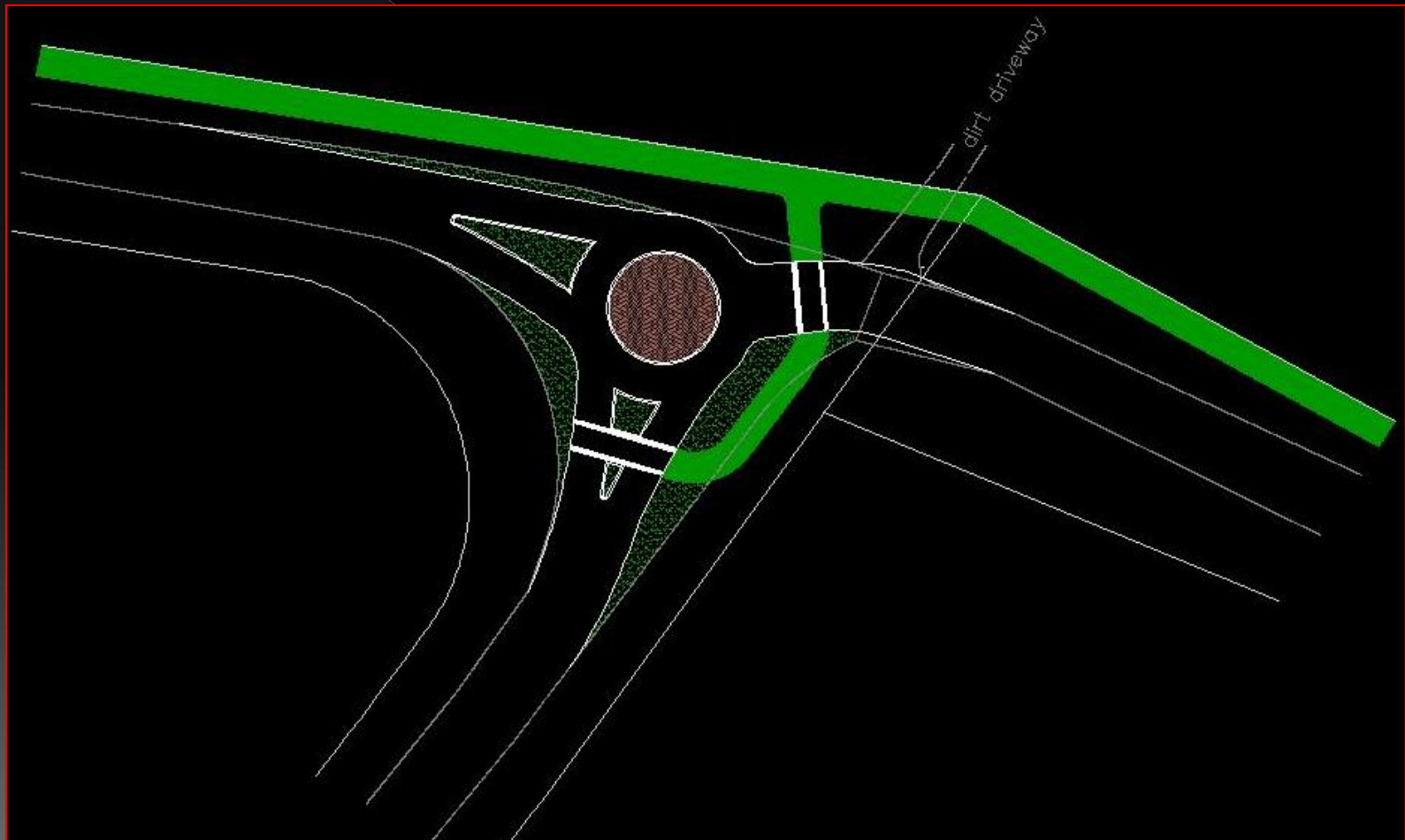
# EXISTING CONDITIONS

- Chappaquiddick Rd – Dike Bridge Rd Intersection



# CONSIDERED OPTIONS

- Chappaquiddick Rd – Dike Bridge Rd Intersection
  - Roundabout



# CONSIDERED OPTIONS

- Chappaquiddick Rd – Dike Bridge Rd Intersection
- “T” Intersection





# RECOMMENDATIONS

- Multi-modal facility
- Ferry Operations / Ferry Parking
- Chappaquiddick Rd / Dike Bridge Road



Chappaquiddick Road, Edgartown, MA  
[www.chappybikepath.com](http://www.chappybikepath.com)

QUESTIONS?

Email: [HTE-capstone@googlegroups.com](mailto:HTE-capstone@googlegroups.com)