CONNECTU
Connecticut - Long Island Connector
TEAM 49
Goal: Alleviate traffic congestion in tristate area and increase overall Level of Service
Request for Proposal – CONNDOT & NYSDOT joint venture
Alternatives Analysis

Cost/Benefit Analysis of each proposed alternative
Design Criteria

REST AREA

TEAM 49
PROGRAM MANAGEMENT
## Bridge Traffic

<table>
<thead>
<tr>
<th>Alt. Routes</th>
<th>Triboro</th>
<th>Whitestone</th>
<th>Throgs Neck</th>
<th>PJ Ferry</th>
<th>OP Ferry</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt. Route volume (2016)</td>
<td>64.0M</td>
<td>46.0M</td>
<td>43.4M</td>
<td>500k</td>
<td>500k</td>
<td>154.4M</td>
</tr>
<tr>
<td>% of Alt. Vol. going to our bridge</td>
<td>1%</td>
<td>25%</td>
<td>25%</td>
<td>95%</td>
<td>95%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Annual Vol. to our bridge</td>
<td>640k</td>
<td>11.5M</td>
<td>10.9M</td>
<td>475k</td>
<td>475k</td>
<td>24.0M</td>
</tr>
</tbody>
</table>

26 miles
• Toll: $20/car; $40/truck
• Ramp up in first 3 years (50%, 75%, 90%)
• 0.5% growth/year (Source: NYMTC Population forecast)

• 50 year total traffic: 1.44 billion
• 50 year total revenue: $30.75 billion
Potential Landing Locations

- **Connecticut Locations**
  a. New Haven Harbor
  b. Connections to I-95 and I-91

- **New York Locations**
  a. No apparent conflict
  b. End of William Floyd Parkway
Potential Landing Locations

1. Impact nature preserve
2. Impact to Veteran’s Memorial Park
3. Open landing and connections to Church St
4. Too close to I-95 and I-91 interchange
Roadway Connections

1. **Tie-In** to existing network (I-95 and I-91)
2. **Full access** interchange (All directions)
3. **Roadway Geometry Criteria**
   a. Minimum radius
   b. Design Speed
   c. Merge Lanes
   d. Number of lanes
Waterfront Elements

- Restaurant
- Kayak rental
- Boat launch
- Basketball
- Handball
- Dog park
- Amphitheatre
- Playground
- Picnic BBQ Area
- Food Trucks
- Tennis Courts
- Parking
- Fishing Pier
- Open Field
- Restroom
- Skate Park

TEAM 49
BRIDGE / TUNNEL DESIGN
Bridge / Tunnel Connector

Beam Bridge over existing condition
Tunnel length = 4 miles

- Beam Bridge Length = 22 miles
- Cable Stay Bridge at Center with ½ mile clear span 200’ over water
- 2 lanes each direction; 1 bike / pedestrian lane
1. Review imposed dead and live loads
2. Created Framing Plan
3. Determine Tributary Areas
4. Shear and Moment Diagrams

5. Chose steel section in

**AISC Steel Construction Manual**
- **Beam** = W40x199
- **Girder** = Built-up plate girder
- **Piers** = Reinforced concrete
Tunnel Lighting

- Use LED Linear Lighting
  - Emergency Lighting = Orange Hue
  - Emergency Lighting Power = Generator
Tunnel Ventilation

- 2 Ventilation towers
  - 1 on Long Island
  - 1 on Transition Island
- Welcome Signs on towers
TRANSITION ISLAND AND WELCOME CENTER
Programming

- 8,250 VISITORS PER DAY ON TRANSITION ISLAND
- WELCOME CENTER SIZE BASED ON CODE CALCULATIONS:
  - 75 SQUARE FEET REQUIRED PER PERSON
  - 500 VISITORS
  - TOTAL BUILDING: 37,000 SQUARE FEET

Welcome Center
- Food Stands
- Gift Shops
- Seating/Lounge/Patio
- Informational Kiosk/Area
- Bathrooms
- Charging Areas (Free Wi-Fi)
- Bicycle Stand/Lock/Rental
- Garbage/Recycling
- Interactive Activity/Game/Yard/Media
- Overlook/Green Roof

GAS STATION - CHARGING STATIONS - 5
EMERGENCY SERVICES - 4
PARKING (MIN. 30) - 3
FAN BUILDINGS - 2
WELCOME CENTER - 1
OVERNIGHT TRUCK REST - 9
PARK - 6
MAINTENANCE - 8
LOCAL ROADS - 7
Transition Island

- Single Lane Roundabout For Site Access *(Per AASHTO Green Book)*
- Island Wide Park Setting
- Provides Necessary Services For Welcome Center, Vehicles, And Tunnel
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Welcome Center

- 37,000 Square Feet
- 500 Visitors Per Hour
- High Ceilings (20’ In Lobby)
- Drop Ceilings In Bathrooms and Back Of House (10’ Ceilings)
- Glass And Brick Façade
### Goals

- Establish baseline project schedule
- Identify Critical Path Activities
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THANK YOU!