Solutions for Urban Traffic Congestion

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Tampa, Florida
Presentation

1. **Summary of Tampa Elevated Reversible Express Lanes (Toll Highway)**

2. **Florida Fixed Rail Projects**
   - Metro Rail (Miami-Dade)
   - Tri-Rail (Dade, Broward & Palm Beach Co.)

3. **Honolulu’s Congestion Solution?**
   -Fixed Rail?
   - Elevated Hot Lanes?
   - Where does the money come from?
• LOS F (Forced Flow)
• 75/25 Directional Split
  • 15% Peak Hour
  • 98% Repeat Users
Problems

1. **Severe AM/PM Peak Traffic Congestion**
   - Long-term Need for 10 Lanes

2. **Physical Considerations**
   - Narrow ROW - Constrained

3. **Fixed Rail Not Feasible**
   - Population (Approx 1,000,000)
   - Land Use & Density Not Suitable
   - No Complimentary Infrastructure
   - Ridership **NOT** Large Enough to Positively Affect Traffic Congestion
   - No Local Capital or O&M Subsidies
   - BRT a More Flexible Transit Solution
Crosstown Peak-Hour Solution

1. Design (3) reversible express lanes
   Divert >50% of daily commuter traffic from existing lanes to express lanes

2. Install Open Road Tolling (ORT)
   Electronic and video-based toll collection

3. Build most of project as a concrete segmental bridge in the median
   “6 lanes on 6 feet” – to save valuable ROW for future transportation needs
Selmon Crosstown Expressway Typical Section

Existing 4 Lanes with 3 Express Lanes

Dimensions:
- 59 feet
- 46 feet
- 150 feet

Lane Widths:
- 10 feet
- 12 feet
- 12 feet
- 12 feet
- 12 feet

Selmon Crosstown Expressway Typical Section

Expand to 6 Lanes with 3 Express Lanes

59'

34'

150'
Selmon Crosstown Expressway Typical Section

Add Transit with 3 Express Lanes

- 10' 12' 12' 12' 10'
- 6' 12' 12' 10'
- 150'
- 59'
- 20'
- 25'
- 10' 12' 12' 6' 12' 12' 10'
- 25'
Interim Operations

Open to Traffic
WB - 7/06
EB - 8/06

Express Lane Traffic @ Forecast
Approximately 11,000 ADT (Peak-Hour Only)

Total Traffic +2,000 ADT (Diversions from Local parallel Non-tolled roads)
Project Costs & Benefits

Total Project Cost = $300 Million

- Planning & Env Studies = $2M
- Design = $4M
- Segmental Bridge (5.5 miles) = $120M
- Gateway Entrances = $30M
- At-Grade Sections (4.5 miles) = $64M
- All ITS Controls & TMC = $17M
- ROW (ponds) = $5M
- ROW (downtown gateway) = $28M
- CM/CEI = $20M
- Contingency & Overage = $10M
Project Costs & Benefits

Total Project Cost = $300 Million
+ $120 Million Foundation Reinforcement
= $420 Million Final Cost
Project Costs & Benefits

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Express Lanes = 27 Lane Miles
Brandon Parkway = 12 Lane Miles
Meridian Gateway = 6 Lane Miles
Project Total = 45 Lane Miles
Project Costs & Benefits

Total Project Cost = $300 Million
+ $120 Million Foundation Reinforcement
= $420 Million Final Cost

Express Lanes = 27 Lane Miles
Brandon Parkway = 12 Lane Miles
Meridian Gateway = 6 Lane Miles
Project Total = 45 Lane Miles

Cost Per Lane Mile = $8.5 Million
Project Costs & Benefits

Total Project Cost = $300 Million
+ $120 Million Foundation Reinforcement
= $420 Million Final Cost

Express Lanes = 54 Lane Miles
Brandon Parkway = 12 Lane Miles
Meridian Gateway = 6 Lane Miles
Functional Project Total = 72 Lane Miles

Cost Per Lane Mile = $5.8 Million
Project Costs & Benefits

Segmental Bridge Cost = $120 Million
  + $120 Million Foundation Reinforcement
  = $240 Million Final Cost

Segmental Bridge = 17.5 Lane Miles
  Cost Per Lane Mile = $14 Million

Reversible Bridge = 35 Lane Miles
  Cost Per Lane Mile = $7 Million
Project Costs & Benefits

Express Lanes Cost to Local Taxpayers

$0

100% Funding based on Revenue Bonds and Loans Repaid from $1.00 Toll

(Toll increase to $1.50 in 2007)
Project Costs & Benefits

Express Lanes Transportation Benefits

Before
- Total Traffic = 115,000 ADT
- East End Traffic = 75,000 ADT
- LOS F in AM & PM Peak
- AM Peak Trip Time = 30-40 Minutes
Express Lanes Transportation Benefits

**Before**
- Total Traffic = 115,000 ADT
- East End Traffic = 75,000 ADT
- LOS F in AM & PM Peak
- AM Peak Trip Time = 30-40 Minutes

**After**
- 150% Increase in Capacity
- Divert 2,000 Trips from Local Roads
- LOS B for East End of Expressway
- AM Peak Trip time = 10 Minutes
- Four New Express Bus Routes
Fixed Rail Transit in Florida

Metro Rail (Miami-Dade County)
Fixed Rail Transit in Florida

Metro Rail (Miami-Dade County)

Population: 2.4 Million
1984 – Light Rail – 22.4 Miles – 50,000 ADB
Construction Cost: >$1 Billion
Fixed Rail Transit in Florida

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Population: 2.4 Million
1984 – Light Rail – 22.4 Miles – 50,000 ADB
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Fare Box Collections vs. Operating Cost

2nd Worst in US @ $.17 out of $1
Fixed Rail Transit in Florida

Tri-Rail (Dade, Broward & Palm Beach Co.)

[Map of Florida showing Tallahassee, Orlando, Tampa, and Miami]
Fixed Rail Transit in Florida

Tri-Rail (Dade, Broward & Palm Beach Co.)

Population: 5.5 Million
1994 - Commuter Rail – 72 Miles
Cost: >$1 Billion + ROW Amtrak & CSX
Fixed Rail Transit in Florida

Tri-Rail (Dade, Broward & Palm Beach Co.)

Population: 5.5 Million
1994 - Commuter Rail – 72 Miles
Cost: >$1 Billion + ROW Amtrak & CSX

12 Diesel-Electric Locomotives
26 Bi-Level Coaches (Avg 150 seats)
Trains = 4 Coaches (Avg 600 Seats)
Fixed Rail Transit in Florida

Tri-Rail (Dade, Broward & Palm Beach Co.)

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Cost: >$1 Billion + ROW Amtrak & CSX
2.9 M Annual Trips
61,000 Veh Rev Hrs
2.5 M Veh Rev Miles
97 M Passenger Miles

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2.9 M Annual Trips = >8,000 Trips Per Day
61,000 Veh Rev Hrs = Avg 48 Passengers/Hr
2.5 M Veh Rev Miles = 1.4 Passengers/Mile
97 M Passenger Miles = 33 Mile Avg Trip
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Fare Box Collections vs. Operating Cost
Worst in US @ $.11 out of $1
Fixed Rail Transit in Florida

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Cost: >$1 Billion + ROW Amtrak & CSX
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61,000 Veh Rev Hrs
2.5 M Veh Rev Miles
97 M Passenger Miles
$20 M Annual Cost
Add $400 M Double Track

Fare Box
Collections vs. Operating Cost
Worst in US @ $.11 out of $1
Transportation Resources

Why do community’s spend so much money on projects with so little transportation value?
Transportation Resources

Honolulu Rail Project
Transportation Resources

Honolulu Rail Project

How Much?

Who Pays?

What Benefits?
Transportation Resources

Honolulu Rail Project

How Much?
To Build ----- >$4 Billion
To Operate ----- $50 Million

Who Pays?

What Benefits?
Transportation Resources

Honolulu Rail Project

How Much?
- To Build: $4 Billion
- To Operate: $50 Million

Who Pays?
- From Feds: $400 Million
- Local Taxes: $3.6 Billion
- Operations: More Taxes

What Benefits?
Transportation Resources
Transportation Resources

Honolulu Rail Project

How Much?
- To Build: >$4 Billion
- To Operate: $50 Million

Who Pays?
- From Feds: $400 Million
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- Operations: More Taxes

What Benefits?
- Transit Use: 1% of Pop
- H1 Congestion: No Relief
Transportation Resources

Honolulu HOT Lanes

How Much?

Who Pays?

What Benefits?
Transportation Resources

Honolulu HOT Lanes

How Much?
To Build: Below $1 Billion
To Operate: $5-10 Million

Who Pays?

What Benefits?
Transportation Resources

Honolulu HOT Lanes

How Much?
- To Build: Below $1 Billion
- To Operate: $5-10 Million

Who Pays?
- From Feds: $400 Million
- From Private: Below $.6 Billion
- Operations: Toll Revenue

What Benefits?
- Transportation Resources
- HOT Lanes
- Below $1 Billion
- Below $.6 Billion
- Toll Revenue
- $5-10 Million
# Transportation Resources

**Honolulu HOT Lanes**

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<thead>
<tr>
<th>How Much?</th>
<th>To Build</th>
<th>⬇️ Below $1 Billion</th>
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<tbody>
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<td>To Operate</td>
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<tr>
<th>What Benefits?</th>
<th>Transit Use</th>
<th>⬆️ Express Bus</th>
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<tr>
<td>H1 Congestion</td>
<td>⬇️ Reduced</td>
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Transportation Resources

Pay-As-You-Go (Fuel Tax):

Pay-As-You-Use (Tolls):
Transportation Resources

Pay-As-You-Go (Fuel Tax): 100% for maintenance, resurfacing and widening (no new construction)

Pay-As-You-Use (Tolls):
Transportation Resources

Pay-As-You-Go (Fuel Tax): 100% for maintenance, resurfacing and widening (no new construction)

Pay-As-You-Use (Tolls): Most new highways built with a form of debt financing - bonds, loans, infrastructure banks, public-private partnerships, leases (50-100 year useful life assets)
Transportation Resources

Pay-As-You-Go (Fuel Tax): 100% for maintenance, resurfacing and widening (no new construction)

Pay-As-You-Use (Tolls): Most new highways built with a form of debt financing - bonds, loans, infrastructure banks, public-private partnerships, leases (50-100 year useful life assets) repay debt over time (like a mortgage)
Transportation Resources

Possible Cost to Honolulu Taxpayers for an Elevated High Occupancy Toll Highway

$0

100% Funding based on a $400 Million Contribution from FTA and Revenue from Tolls
References/Documentation

1. HNTB (GEC & Construction Manager)
2. URS Corporation (Design & CM)
3. Figg Bridge Engineers (Structural Design)
4. Parsons Brinkerhoff (Roadway Design)
5. Wilbur Smith & Assoc. (Traffic & Revenue)
6. PCL (General Contractor)
Solutions for Urban Traffic Congestion

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Tampa-Hillsborough Expressway Authority
Tampa, Florida
Morning Operation

- Downtown Tampa
- Meridian Avenue
- Toll Plaza
- Local Lanes
- 78th Street
- Falkenburg Road
- 301
- Interstate 75
- Town Center Blvd
- Brandon Parkway
- Mall
- Brandon
- Closed

Local Lanes
Mid-Day Operation

Closed Lane

Local Lanes

Toll Plaza

Falkenburg Road

INTERSTATE 75

Town Center Blvd

Mall

Brandon Parkway

Meridian Avenue

Downtown Tampa

Twiggs Street

78th Street

301

Brandon

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