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Open House Meetings Tier 2 Evaluation

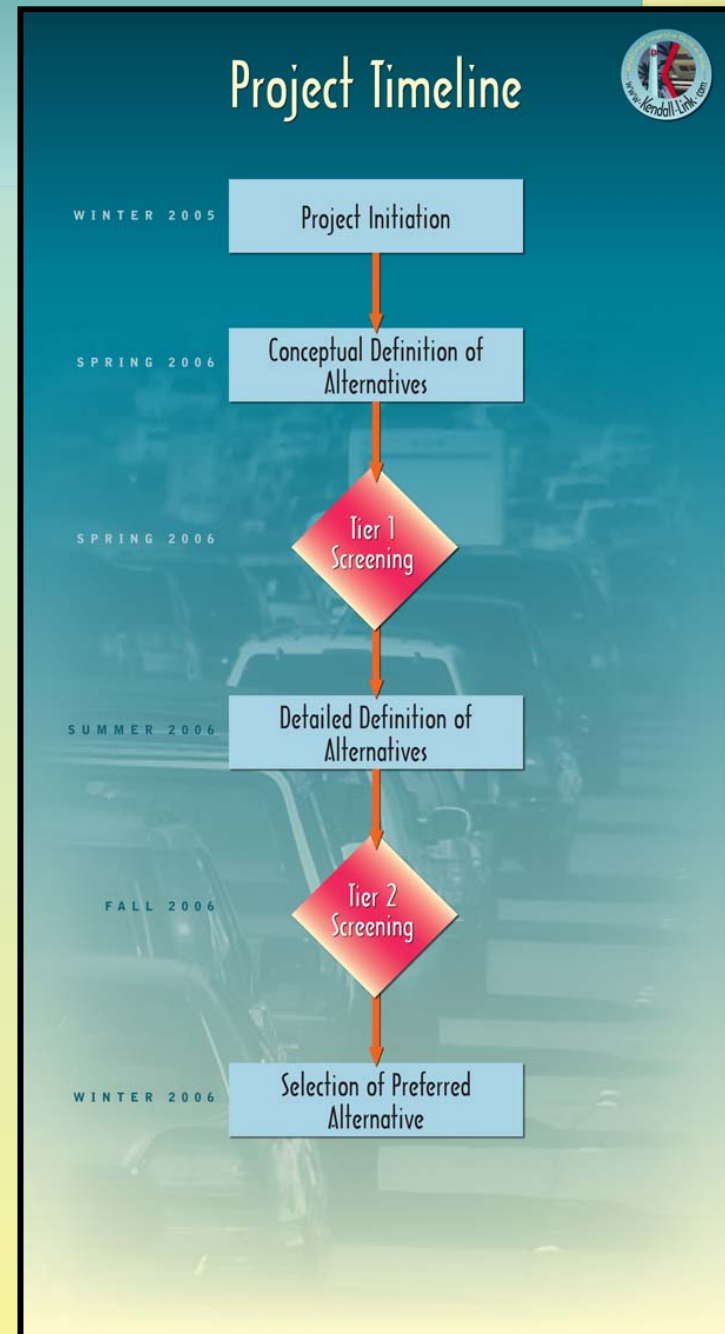
April 24 & 25, 2007



Agenda

- 1. Introductory Comments**
- 2. Background**
- 3. Tier 1 Evaluation**
- 4. Tier 2 Alternatives Evaluation**
- 5. Traffic Evaluation**
- 6. Next Steps**

Kendall Corridor Transportation Alternatives Analysis





What is the problem to be addressed



Kendall Area Population Growth



Miami Area Employment Origins



Kendall (221,010)

South (93,840)

Northeast/Beaches (129,823)

CBD (32,028)

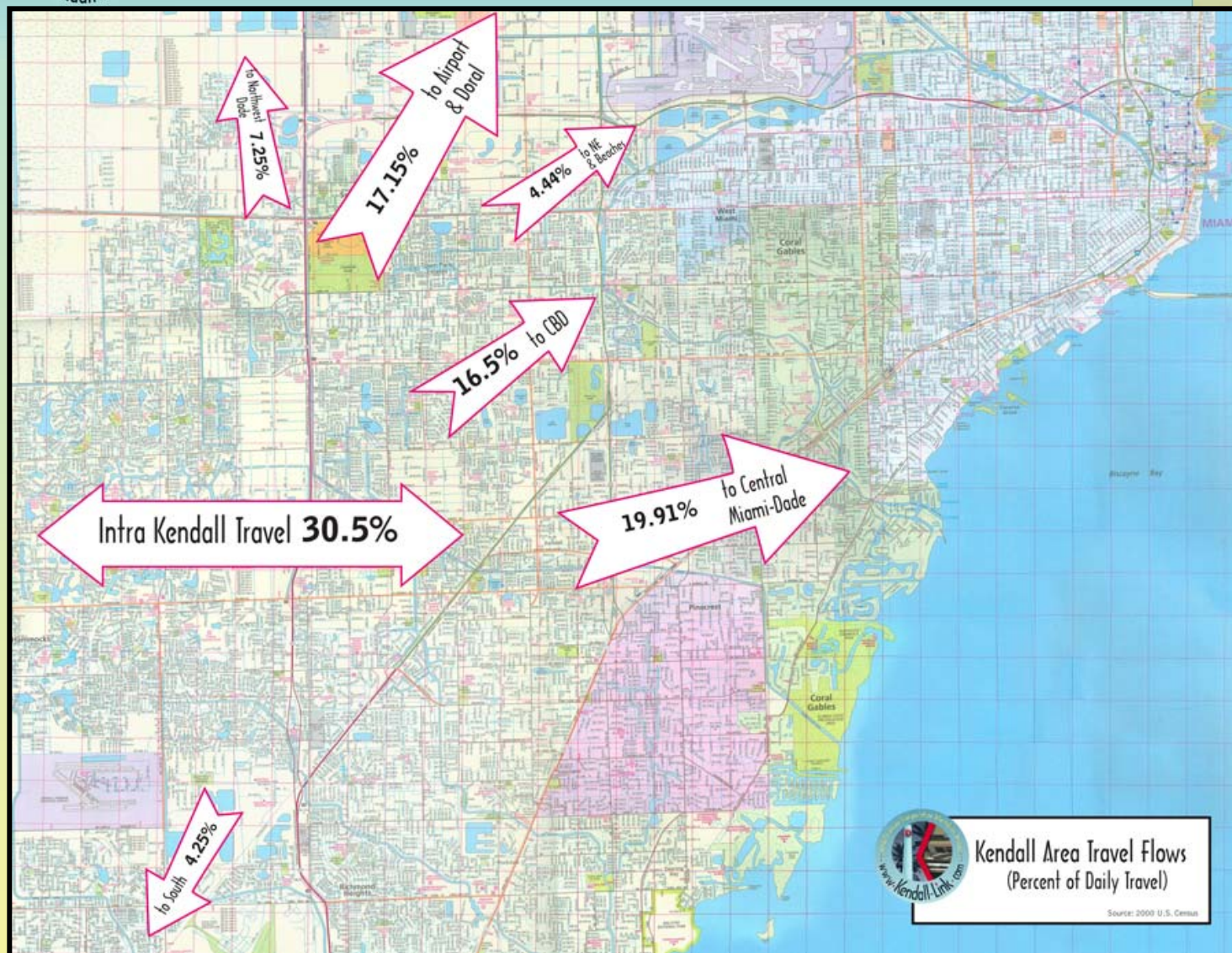
Central (125,100)

Airport/Doral (22,605)

Northwest (191,425)

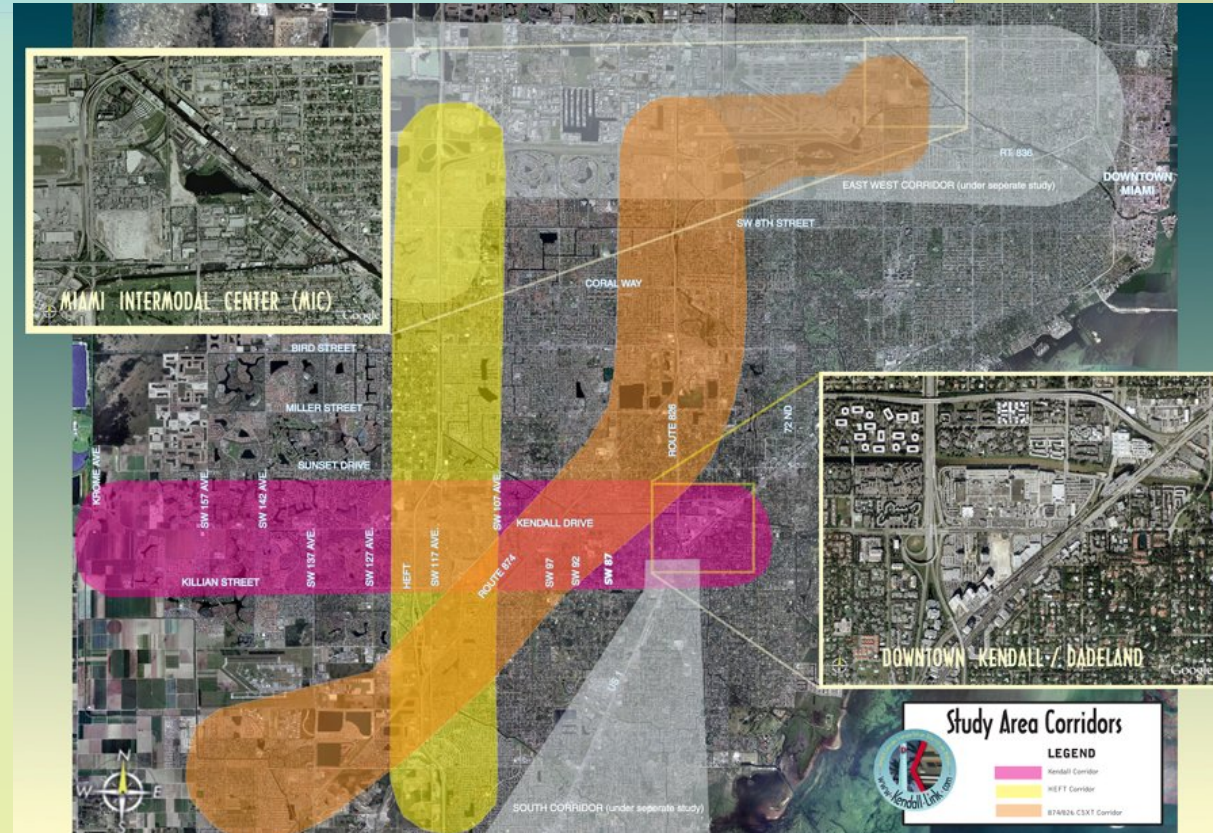


Kendall Area Travel Patterns



3 Primary Study Corridors

- **Kendall Drive**
 - East – West
 - U.S. 1 – Krome
- **HEFT / 107th**
 - North – South
 - Metro Zoo – MIC
- **874/826/CSX**
 - North – South
 - Metro Zoo – MIC
 - Kendall Airport - MIC



Tier 1 Alternatives



Tier 1 Alternatives

Kendall Corridor

1. Bus Rapid Transit
2. Light Rail Transit
3. MetroRail

HEFT / 107th Corridor

1. Bus Rapid Transit
2. MetroRail

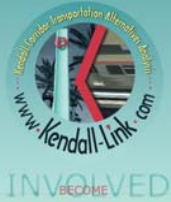
826 / 874 Corridor

1. Bus Rapid Transit

CSX Corridor

1. Diesel Multiple Unit (DMU)

Tier 2 Alternatives



Tier 2 Alternatives

- **Kendall Drive**
 - **Exclusive BRT**
 - **Metrorail**
- **HEFT Corridor**
 - **Metrorail (Extension of East-West Corridor)**
- **CSX Corridor**
 - **DMU**
- **137th Ave BRT (New Option)**



Transit Technologies

Bus Rapid Transit (BRT)



**Please view the Bus Rapid Transit (BRT)
example video on the main project page**

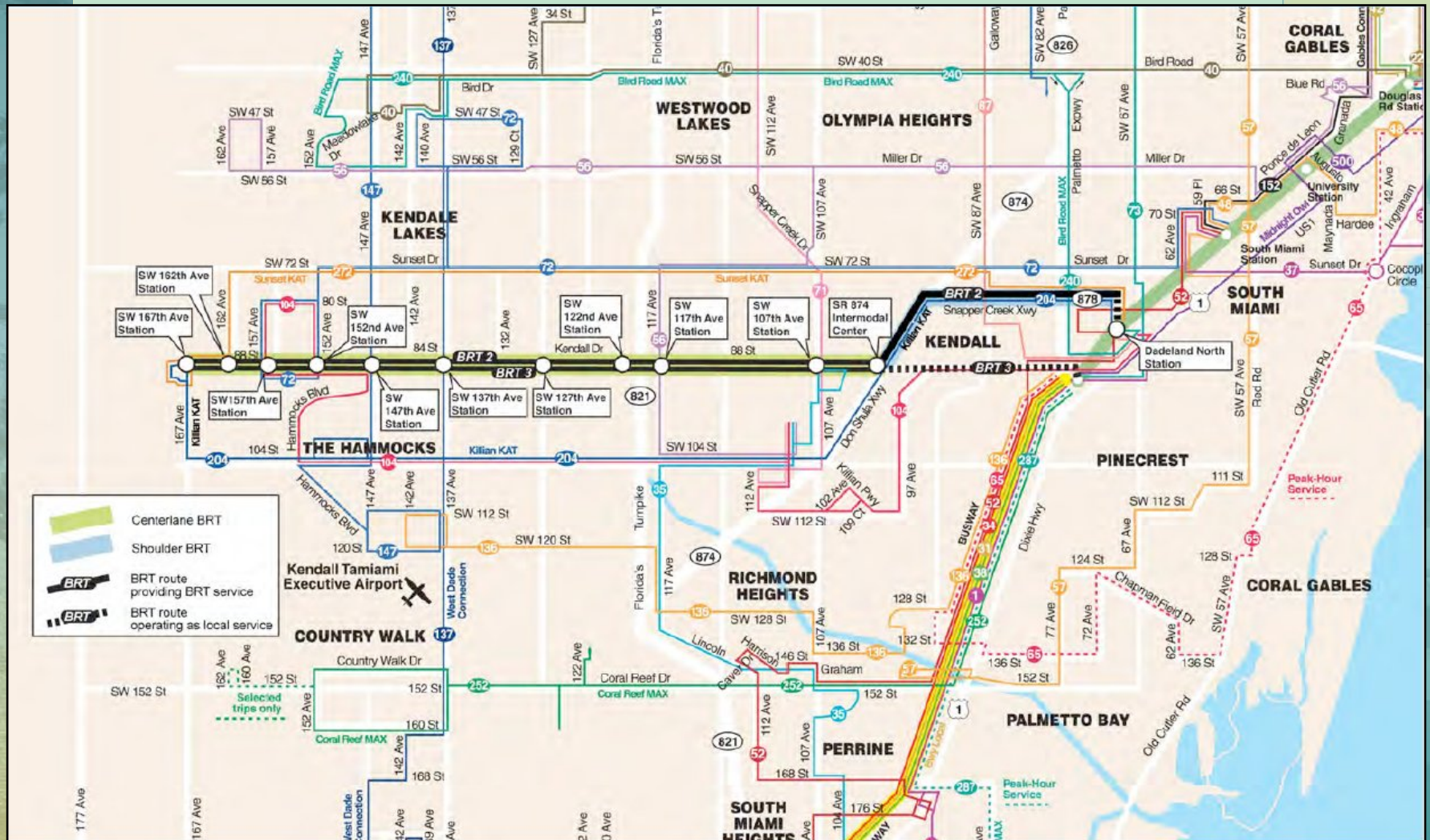
Diesel Multiple Unit (DMU)





Kendall Corridor Alternatives

Alternatives A1-A3 – Kendall BRT



Alternative A1 – A3 - Kendall BRT



Mode

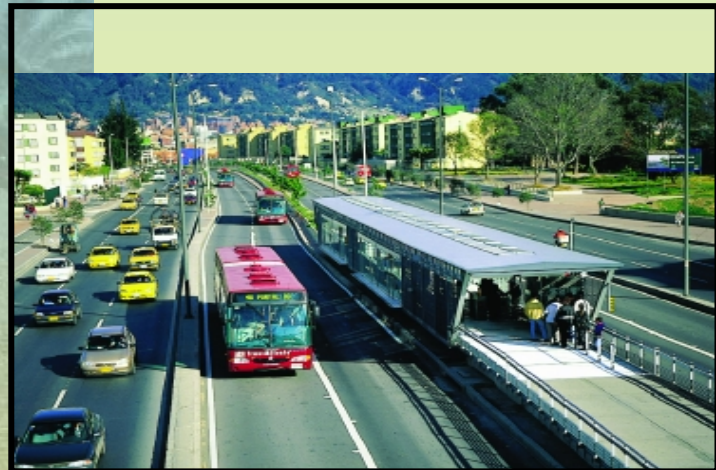
BRT

Daily Transit Trips

A1 - 10,000

A2 - 7,041

A3 - 5,834



Headways

6 / 10 Minutes

Capital Cost

A1 - \$326.6m

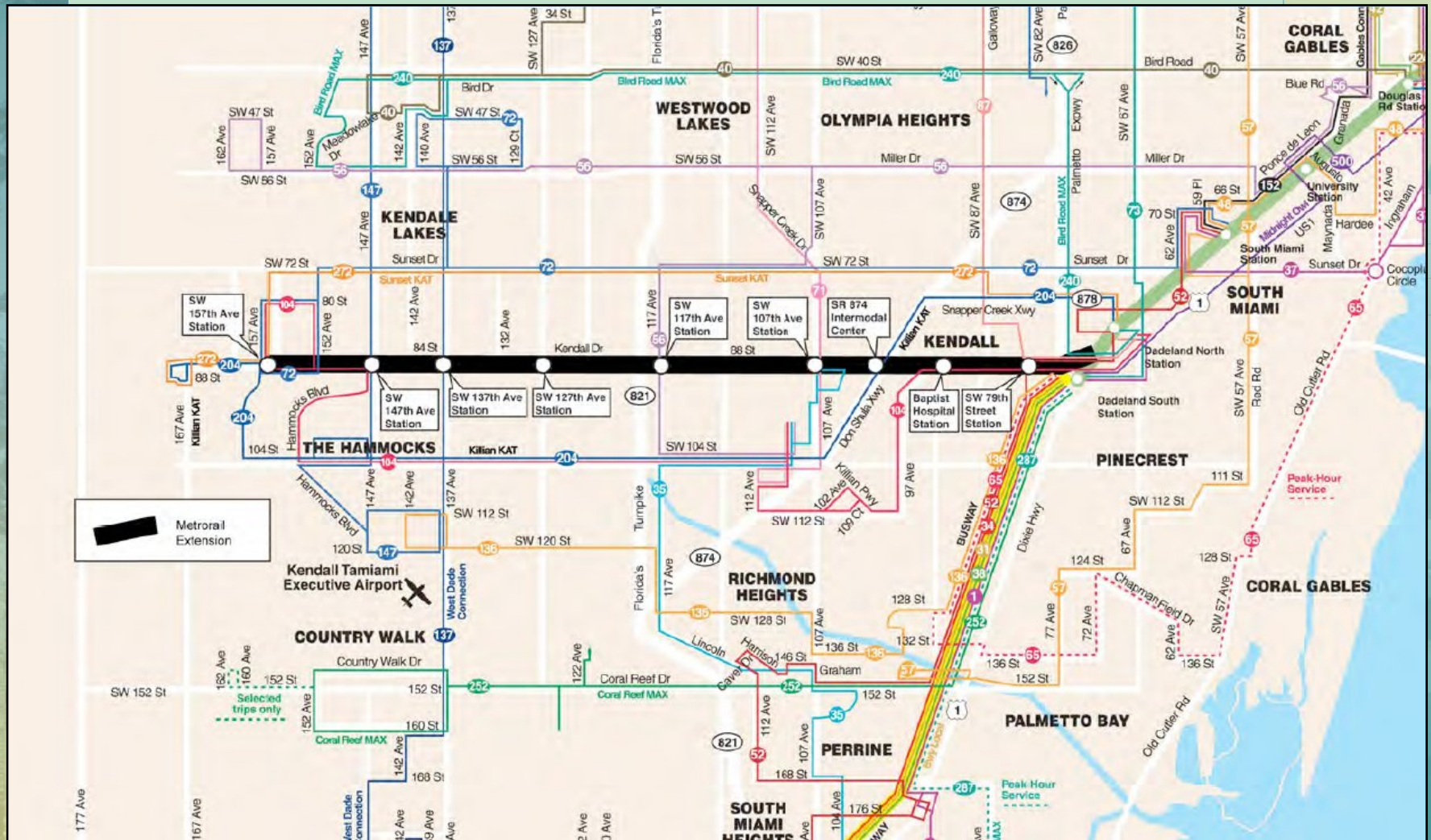
A2 - \$253.7m

A3 - \$249.7m

O&M Cost

\$4.6m-5.2m

Alternative A4 – Kendall MetroRail



Alternative A4 – Kendall MetroRail



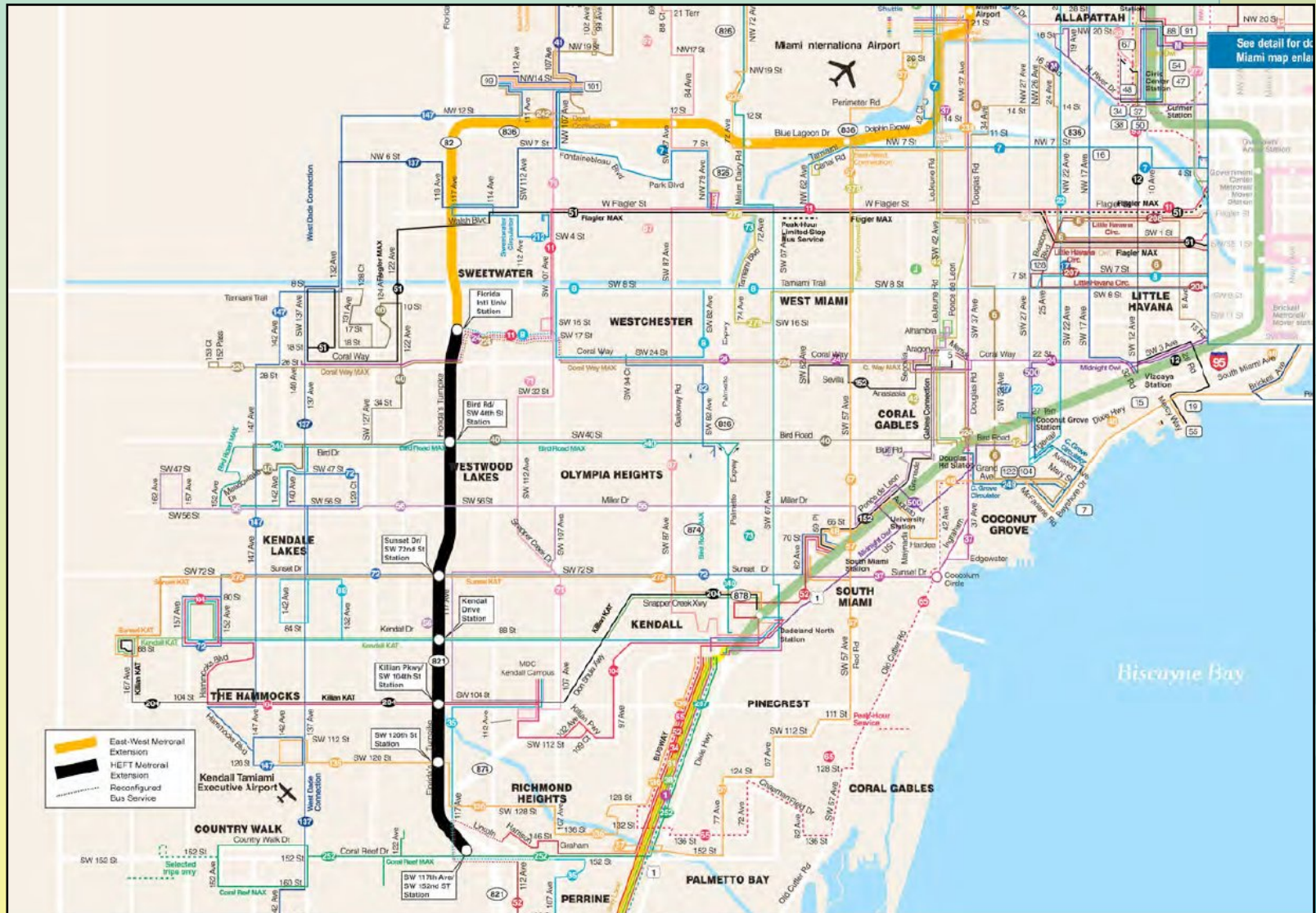
Mode	MetroRail
Daily Transit Trips	15,600
Headways	6/12 Minutes
Capital Cost	\$1.68b
O&M Cost	\$18.8m

HEFT Corridor Alternatives



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Alternative B1- HEFT MetroRail





Alternative B1- HEFT MetroRail



Mode	MetroRail
Daily Transit Trips	12,250
Headways	6/12 minutes
Capital Cost	\$ 1.69b
O&M Cost	\$19.7m



CSX Corridor Alternatives

CSX Corridor - DMU



Option C2

4 passenger stations

30 min. peak hour headways

Option C3

7 passenger stations

20 min. peak hour headways



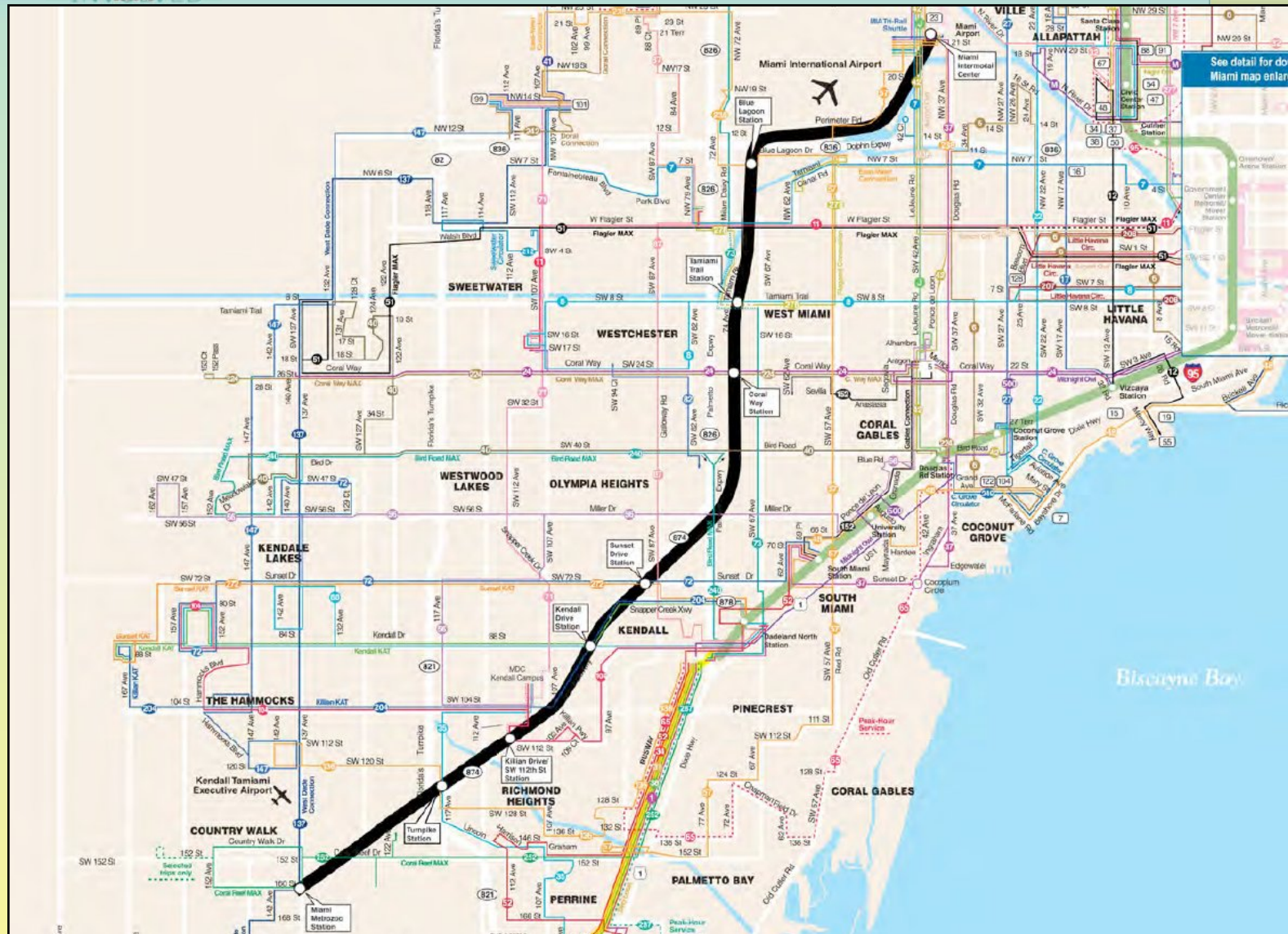
Options C4 & C5

Full Double track

9 passenger stations

15 min. peak hour headways

Alternatives C2-C4 - DMU



Alternatives C2-C4 - DMU



Mode

DMU

Daily Transit Trips

C2 - 600

C3 - 1,144

C4 - 3,100

Headways

C2 - 30/60 minutes

C3 - 20/40

C4 - 15/30

Capital Cost

C2 - \$190m

C3 - \$224.1m

C4 - \$368m

O&M Cost

\$5.2m – 12m



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Alternative C5 - DMU



Mode	DMU
Daily Transit Trips	3,000
Headways	15/30
Capital Cost	\$386m
O&M Cost	\$12.2m



137th Ave. Corridor Alternatives



Alternative D1 – 137th BRT



Mode

BRT

Daily Transit Trips

7,800

Headways

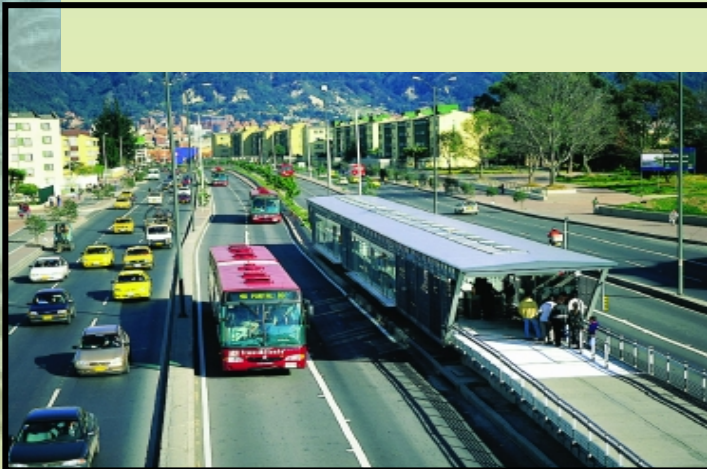
6 / 10 Minutes

Capital Cost

\$407M

O&M Cost

\$6.5m





Traffic Evaluation



Basis for BRT Analysis

- **BRT in Median**
- **Transit Signal Priority at Intersections**
 - **10-second green extension**
- **Six-Minute Headways**
- **2030 Traffic Conditions**
- **PM Peak Hour**
- **Major Intersections Only (also looked at select intersections with geometric modifications)**

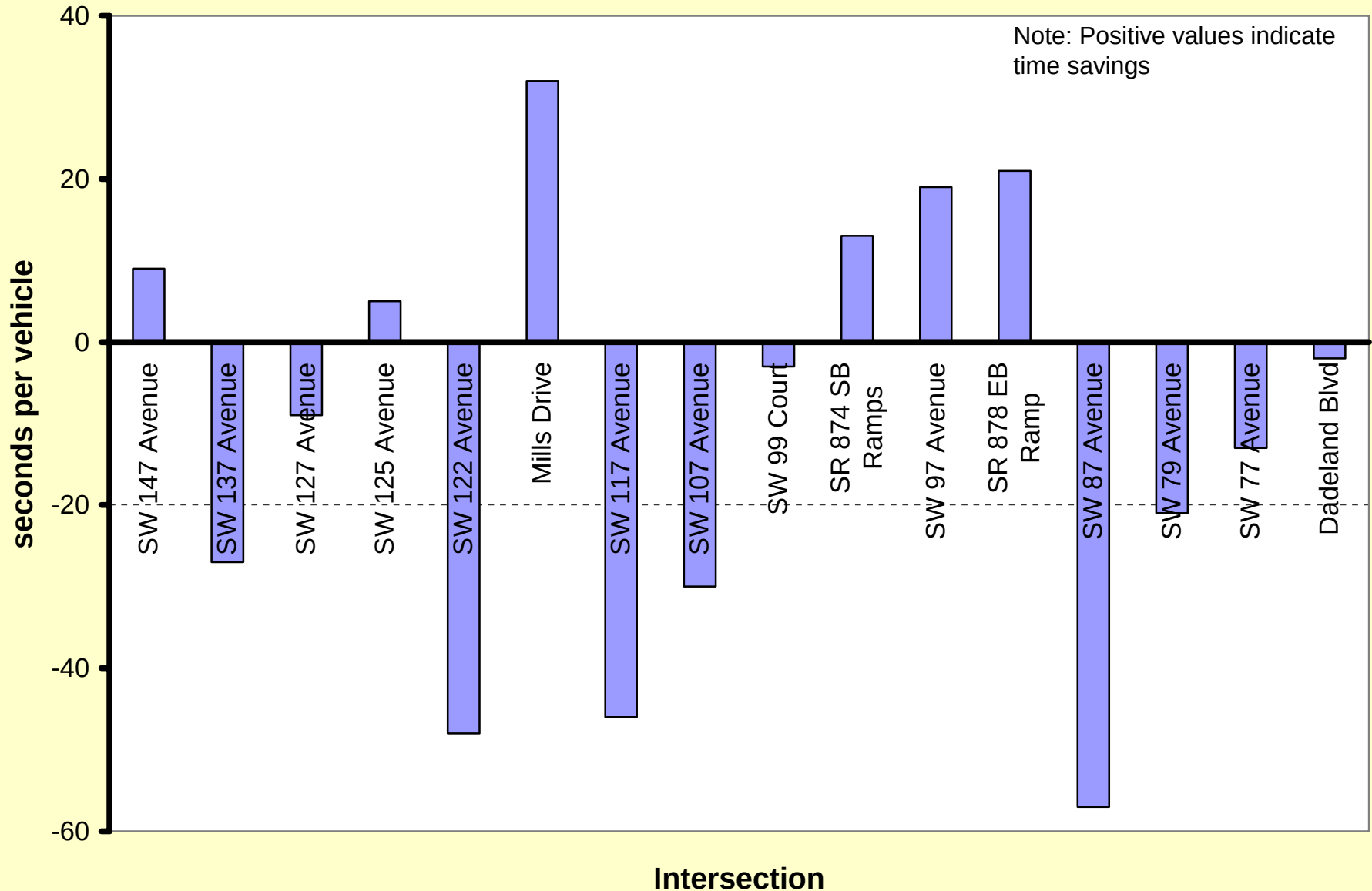


Evaluation of Impacts

- **Impacts of Transit Signal Priority**
- **Impacts of Geometric Modifications**
- **In Comparison to No-Build Alternative**
- **Measured in Cumulative Vehicle Hours or Impact per Vehicle in Seconds**



Impacts of BRT Alternative





Summary – BRT Alternative

- **Transit Signal Priority → Marginal Benefits to Kendall Drive East-West Movement**
- **Geometric Modifications and Traffic Diversion → Adverse Impacts**
- **Most Significantly Affected Intersections → SW 137 Ave, SW 122 Ave, SW 117 Ave, SW 107 Ave, and SW 87 Ave**



Basis for DMU Analysis

- **DMU in CSX Corridor**
- **Two-Car Trains Sets**
- **Double Track**
- **15-Minute Headways**
- **2030 Traffic Conditions**
- **PM Peak Hour**
- **Major Grade Crossings Only (Mid-Blocks and Intersections)**



Evaluation of Impacts

- **Impacts of Gate Closure**
- **45-Second Gate Closure Duration**
- **In Comparison to No-Build Alternative**
- **Measured in Cumulative Vehicle Hours or Impact per Vehicle in Seconds**



Impacts of DMU Alternative

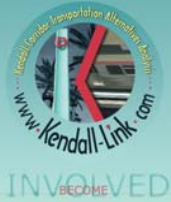
Cross Street	Net Cumulative Impact (veh-hr)
Flagler Street	-5.6
Tamiami Trail	-5.2
Coral Way	-5.2
Bird Road	-7.8
Miller Road	-5.0
Sunset Drive	-5.1
Kendall Drive	-7.1
SW 112 Street	-2.2
Coral Reef Drive	-6.9
Average	-5.6

Negative Values Indicate Delays



Summary – DMU Alternative

- **Gate Closure Marginally Impacts Vehicular Traffic**
- **Per Vehicle Impact is Around 45 Seconds**
- **Highest Cumulative Delay → Bird Road, Kendall Drive, and Coral Reef Drive**



Comparison of Alternatives

- **BRT Alternatives**
 - **Transit Signal Priority Marginally Benefits Traffic**
 - **Geometric Modifications Adversely Impact Traffic**
- **DMU Alternative**
 - **Affects Fewer Vehicles**
 - **Average Delay Per Impacted Vehicle is 45 Seconds**

Summary



Tier 2 Summary

Alternative	Ridership (Trips)	Capital Cost (millions)	O & M Cost (millions)	Traffic Impact	Major Intersections Affected
A1 – Kendall BRT	10,048	\$ 326.6	\$ 4.8	High	16
A2 – Kendall BRT	7,041	\$ 253.7	\$ 5.2	High	15
A3 – Kendall BRT	5,834	\$ 249.7	\$ 4.6	High	13
A4 – Kendall MetroRail	15,565	\$ 1,682.0	\$ 18.8	Low	N/A
B1 – HEFT MetroRail	12,265	\$ 1,686.3	\$ 19.7	Low	N/A
C2 – DMU / CSX – 30 min.	600	\$ 190.6	\$ 5.2	Low	9
C3 – DMU / CSX - 20 min.	1,912	\$ 224.1	\$ 7.7	Low	9
C4 – DMU / CSX – 15 min.	3,083	\$ 368.0	\$ 12.0	Low	9
C4 – DMU / CSX – SW 157th	3,017	\$ 386.5	\$ 12.2	Low	10
D1 – 137 th Ave. BRT	7,785	\$ 407.9	\$ 6.5	High	14

Next Steps



Next Steps

- 1. Further Technical Analysis**
 - **Refine Ridership Demand**
 - **Develop FTA User Benefits**
- 2. Public / Stakeholder Outreach**
- 3. Identify Preferred Transit Strategy**
 - **Near-Term**
 - **Mid-Term**
 - **Long Term Vision**
- 4. MPO Action**



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www.kendall-link.com