Presentation Outline

1. Introduce problem statement
2. Evaluate existing transit options
3. Proposed alternative
4. Maryland Statewide Transportation Model
5. Evaluation of alternative
6. Costs
7. Conclusion/Recommendations
**Project Goal**

- Coincides with AA County Transportation Commission Mission Statement
- Connect the city of Annapolis to BWI and Arundel Mills by providing cost effective, safe, and efficient transportation to improve quality of life.
Analysis of Existing Modes - Route 215

Route 215 - Commuter Bus from BWI to Annapolis

3 buses in the morning starting at 5:45AM with a headway of 1 hour from Baltimore to Annapolis one way

3 buses in the morning starting at 3:17PM with a headway of 1 hour from Annapolis to Baltimore

Annapolis > Cromwell > BWI

One way fare = $6.70 including light rail fare

Total trip time for passenger = ~60 minutes assuming no wait time for bus

Analysis

Only convenient for people who have flights that arrive very early in the morning or during the afternoon during rush hour

Headway is relatively long, and the fare is high
Analysis of Existing Modes - Route 014

Route 014 - Annapolis to BWI

Runs 7 days a week from 5AM-12AM

Fare $3.40 including light rail fare

Annapolis > Cromwell > BWI

Total trip time including light rail = ~1.5 hours

Headway is 20 minutes

Analysis

Cheap fare

Short headway
Analysis of Existing Modes - Route 017

Route 017 - BWI to Arundel Mills

Operation hours: 24/7

Fare $1.70

Total trip time from BWI to Arundel Mills = ~28 minutes

<table>
<thead>
<tr>
<th>Headway</th>
<th>From Annapolis to Arundel Mills = ~2 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Peak</td>
<td>22 minutes</td>
</tr>
<tr>
<td>Weekday Off Peak</td>
<td>1 hour 10 minutes</td>
</tr>
<tr>
<td>Weekend</td>
<td>1 hour</td>
</tr>
</tbody>
</table>

Analysis

Cheap fare, headway can be long depending on when you are traveling
Proposed Route

Fixed Transit Bus Route

Four Stops:

MD 450 & Church Circle
Rowe Blvd & Taylor Ave
Medical Parkway
BWI Airport
Proposed route

Stops in City of Annapolis
Proposed route

- One Way Trip: 40-45 minutes
- Operating Cost per average week day is 338$/day.
- Optimal spacing is 0.27 miles
- Headway - 10 minutes
MARYLAND STATEWIDE TRANSPORTATION MODEL (MSTM)

MSTM Peak Period: 3:30 PM TO 6:30 PM
Maryland Statewide Model Transportation (MSTM)

<table>
<thead>
<tr>
<th>State</th>
<th>SMZ (Statewide Model Zone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>1151</td>
</tr>
<tr>
<td>VA</td>
<td>171</td>
</tr>
<tr>
<td>PA</td>
<td>55</td>
</tr>
<tr>
<td>WV</td>
<td>30</td>
</tr>
<tr>
<td>DE</td>
<td>97</td>
</tr>
<tr>
<td>DC</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>1588</td>
</tr>
</tbody>
</table>

Anne Arundel County SMZ - 111 to 217
MSTM (Mode Choice)

Levels of Mode Choice - Utilize Nested Logit Model

Level 1

Person

Auto

SR(b) DA

SR2 SR3+(b)

Transit(b)

Walk

Bus Rail(b) CR(b) Exp(b)

PnR(b)

Bus Rail(b) CR(b) Exp(b)
Results/Analysis of Proposed Route

Evaluating Route:

- Changed In Transit Ridership Demand
- 7% Increase Annapolis
- 9% Increase BWI
Results/Analysis of Proposed Route

Vehicle Selection

Demand requires 13-25 seats

Champion Defender F550-RL

20 seats, can accommodate 2 wheelchairs

$121,700
DEFENDER F550

DF 281 P/L F-550
189.1" W/O
(20) PASSENGERS & (2) W/C'S
Results / Analysis of Proposed Route

Amenities
- Shelter
- Bench
- Trash Receptacle
- Route or Patron Information
- Vending Machines (Newspaper)

At All Stops:
- Route info regarding getting to Arundel Mills

West St. and Church Circle:
- Bench closer to bus stop

Rowe Blvd and Taylor Avenue:
- Provide bench at bus stop
- Provide trash receptacle

Medical Pkwy:
- Provide bench at bus stop
- Provide trash receptacle
Results/Analysis of Proposed Route

Reliability

11 buses

10 min or less waiting time

Overlap of buses

Environmental Impacts

Ridership increases of 7%, 4%, and 13% along our bus route by 2040

Emission reductions

20% as much carbon monoxide per passenger mile as a single-occupant auto (SOA)

10% as many hydrocarbons per passenger mile as a SOA

75% as many nitrogen oxides per passenger mile as a SOA
Conclusion & Recommendation

Headway: 10 min
Fleet Size: 11 buses
Round Trip: 1 h 22 min
Forecasted increase in Transit ridership

Total Operating Cost: $123,370
Picture Sources


http://www.stopthefrackattack.org/buses-2/

http://www.championbus.com/models/crusader/


http://www.annapolis.org/

Academic Sources

