Transit Approaching: High Capacity Transit Analysis

Background
Backgrounds

- Connect Hampton Roads

LEADS TO A STRONG REGIONAL ECONOMY

CHR LEADS TO BETTER REGIONAL MOBILITY

FOUNDATION: EXISTING TRANSPORTATION SYSTEM

Enhanced Local Bus  High-Capacity Transit  Park & Rides/ TDM  Amenities & Facilities  Active Transportation  Support Infrastructure
High Capacity Transit

The Modes Comprising an HCT Network

Circulator Bus
- Very frequent local buses that connect to major HCT hubs.
- Requires a low level of investment.

Bus Rapid Transit (BRT) Lite
- A premium bus service with more comfortable vehicles, nicer bus stops, greater distances between stops, signal priority, and off-board fare collection. Lower capital cost than standard BRT and Light Rail.

Bus Rapid Transit (BRT) Standard
- True rapid transit providing high frequency and high speed service. Both BRT and Light Rail combine the best features of BRT-Lite with exclusive lanes separated from road traffic. Requires a greater amount of capital investment to implement.

Light Rail

Ferry
- Over water link to major employment centers in the region. Some ferry routes may only operate during rush hours to provide a faster alternative to congested bridges and tunnels.
Data Driven Approach

• Multi-tiered Approach

• Regional Model Trip Flows
  • Peak Period (HBW)
  • All Day Trip Flows (HBO, NHB)

• Census Data
  • Population, households, employment, age, income, disabilities, car ownership, commuters, transit users

• Employment Data
  • Longitudinal Employer-Household Dynamics (LEHD) - Federal, state and Census Bureau data on employers and employees
Step 1: Transit Propensity Index

- Four Indices that identify where transit is most likely to succeed
  - Where Commuters Live
  - Where People Work
  - Where Transit Oriented Populations Live
  - Where People Make Non-work Trips
Work/Non-Work Indexes

Employment Propensity

- High
- Low
- Military Bases

Non Work Trip Propensity

- High
- Low
- Colleges and Universities
Step 2: Model Development

**Origin Model**
- Commuter Index
- Transit Oriented Population Index

**Destination Model**
- Employment Index
- Non-Work Index
Step 3: Overlay Trip Flows

- Import Trip Flows into GIS
  - Transportation Analysis Zones (TAZ) pairs with projected flows between them by mode and purpose
  - XY to Line function to create shapefile of flows

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Step 3: Overlay Trip Flows

- **Prepare TAZ Groupings**
  - Group TAZs into neighborhoods to reduce total
  - Pivot by new neighborhood ID to get new totals
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Ferry Market Sheds

Ferry Destination TAZs
- Downtown Hampton
- Naval Station Norfolk
- Downtown Newport News
- Harbor Park, Norfolk
- Harbor View, Suffolk
- EVMC/Fort Norfolk
- Portsmouth Marine Terminals

Ferry Origin Sheds
Step 3: Overlay Trip Flows

- Overlay the trip flows over the high propensity model
Step 4: Assign Levels of Investment

- Based on total trips estimated through the trip flows originating and ending along each corridor

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<th>Investment</th>
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<td>High-Level</td>
<td>Within the network these corridors have the highest level of all-day trips originating and ending in the corridor, indicating strong regional demand. These corridors also have a high number of land uses designated as high propensity, with mixed-uses that support high frequency all-day transit service.</td>
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<td>Mid-Level</td>
<td>These corridors have a moderate level of all-day trips originating and ending in the corridor indicating solid regional demand and a significant number of land uses designated as high propensity, but neither the trips nor the land use is at the same level as seen in the corridors designated as Highest.</td>
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<td>Lower-Level</td>
<td>While still supportive of HCT, these corridors have a lower level of regional trips originating and ending within them and have fewer areas designated as high propensity when compared to those designated as Highest and Mid-Level.</td>
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Proposed Improvements
• 19 miles of high-investment BRT or LRT separated mostly from traffic
• 33 miles of medium-investment BRT with some separation from traffic
• 65 miles of lower-investment BRT-Lite service
• 3 new high speed ferry routes that provide alternatives to congested bridges and tunnels during rush hour
• 1 new regular ferry route over the Elizabeth River

Highlighted Benefits
• 1,209% increase in the number of people living within half a mile of HCT service
• 374% increase in how many jobs within half a mile of HCT service
### Additional Uses

- System Redevelopment
- Vision Plans
- Transit Development Plan
- Corridor Studies
- Market analysis
- Bikeshare Development Plans
- Active Transportation Network Improvement Plans
- Transit Hub Access
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