Using CTPP Data for Passenger Ferry Demand Forecasting

TRB: Applying Census Data for Transportation

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Agenda

- Passenger ferry modeling and Steer Davies Gleave
- Citywide Ferry Study and Kitsap Transit POF Long-Range Strategy
  - Project context & methodology
  - Why we use CTPP data
  - How we use CTPP data
  - Decisions made regarding CTPP data
  - Project outcome
- Lessons learned
- Citywide Ferry Study | New York, NY
- Kitsap Transit Passenger-Only Ferry Modeling | Seattle, WA
- Stamford High Speed Ferry | Stamford, CT
- Staten Island Ferry Overnight Service Expansion | New York, NY
- Staten Island Ferry to Midtown | New York, NY
- Boston Harbor Now | Boston, MA
- Advisory for Maritime Transportation Services | Puerto Rico
- Casco Bay Transit Schedule Analysis | Portland, ME
Citywide Ferry Study – 2013

- New York City Economic Development Corporation
- CFS2013
  - 50+ locations
  - Six potential routes
  - Revenues, costs, and subsidy levels
  - Fare levels and headways
  - Economics benefits
  - Environmental impacts
  - Resiliency impacts
- Outcome: New York City Ferry System

East River Ferry Service

CFS2013 Ridership Approach

Source: NYCEDC, East River Ferry (top)
CFS2013: Methodology

- 2000 CTPP
- 2010 Census
- 2007-12 ACS
- Planned City Development
- Survey data
- GIS buffer analysis

- 2009 SP Survey
- Level of service characteristics: headways, transfers, travel and wait times, access times

- Detailed East River Ferry Ridership data
- User surveys for on-off patterns
- Seasonal and weekly variations, annual totals

Estimation of Ferry Ridership Potential
CFS2013: Decisions Regarding CTPP Data

- NYC transit layout
- Potential capture market
- Current travel patterns
- Recent development trends
- Modal data

Source: MTA
CFS2013: Site Profiles

- Demographic data
- Additional development
- Journey-to-Work data
- Ferry vs other transit times comparison
- Existing infrastructure

- Primary and Secondary Market Areas
  - PMA: 8 minute walk
  - SMA: 12 minute walk

Source: SDG, OpenStreetMap
CFS2013: Journey-to-Work Data

- Initial site profiles
  - General commutation potential
- Point-to-point ridership & route ridership
  - Detailed tract to tract commute patterns by mode

### JTW from Landing to NYC Boroughs
- Queens: 6%
- Staten Island: 0%
- Manhattan: 37%
- Brooklyn: 55%
- Bronx: 2%

### JTW from Landing to Manhattan
- Canal-23rd St: 19%
- Lower Manhattan: 25%
- Midtown Manhattan: 38%
- 23rd-34th St: 18%
CFS2013: Ridership Forecasts

Legend:
- Ferry Stop
- Transit Stop

Market Areas:
- Primary
  - 1/4 Mile Radius
  - 8 Minute Walk
- Secondary
  - 1/2 Mile Radius
  - 12 Minute Walk

Map Background: © OpenStreetMap contributors (http://www.openstreetmap.org/copyright)
Source: NYCEDC, NYC Ferry
Kitsap Transit Passenger Only Ferry Strategy Development

- Team led by KPFF to develop a strategy and business plan for Kitsap Transit POF
- SDG: ridership and revenue forecasts

Background
- Early 1900s: first POF service in the region
- 1981: Kitsap Transit formed
- 2011: Kingston – Seattle service introduced
- 2012: Kingston – Seattle service cancelled
- 2013 Status

Historic data for calibration, but still need a mode choice model
Kitsap Transit: Proposed Routes
Determine Divertible Market
- Pre-existing foot passenger service
- No pre-existing foot passenger service

Calculate Route Shares
- Multinomial logit model
- Calibration of route choice model

Ridership Forecasts
- Diversion
- Breakdown into daily, hourly profiles
- Frequency scenarios
- Growth
Kitsap Transit: Decisions Regarding CTPP Data

- Current travel patterns
- Pre-existing foot ferry service
- Seattle region transit layout
- Potential capture market: aggregation to zones
Kitsap Transit: Commuter Growth

2000-2010 Growth in Commuters to Seattle
- 10 - 90
- 91 - 225
- 226 - 411
- 412 - 520
- 521 - 1,026

2000-2010 Growth in Commuters to Seattle
- >5% <1%
- 1% - 0.8%
- 0.8% - 0.0%
- 0.0% - 0.5%
- 0.5% - 2.2%
Kitsap Transit: Outcomes

- Long-range strategy and business plan: approved by election in November 2016
- Bremerton – Seattle: active as of July 10, 2017
- Southworth and Kingston – Seattle: vessel procurement
  - Kingston: Summer 2018
  - Southworth: Summer 2020
CTPP Data in Passenger Ferry Modeling

- Level of detail matters
- Consideration of recent and planned development
- Potential growth
- Available data for calibration
- Non-commuter demand
Questions

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