Designing and Deploying Real-Time Web-based Customer Information Systems in a Tourist Economy

19th National Conference on Rural Public and Intercity Bus Transportation

by

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Bridgewater State University and the

Cape Cod Regional Transit Authority

Organization of Presentation

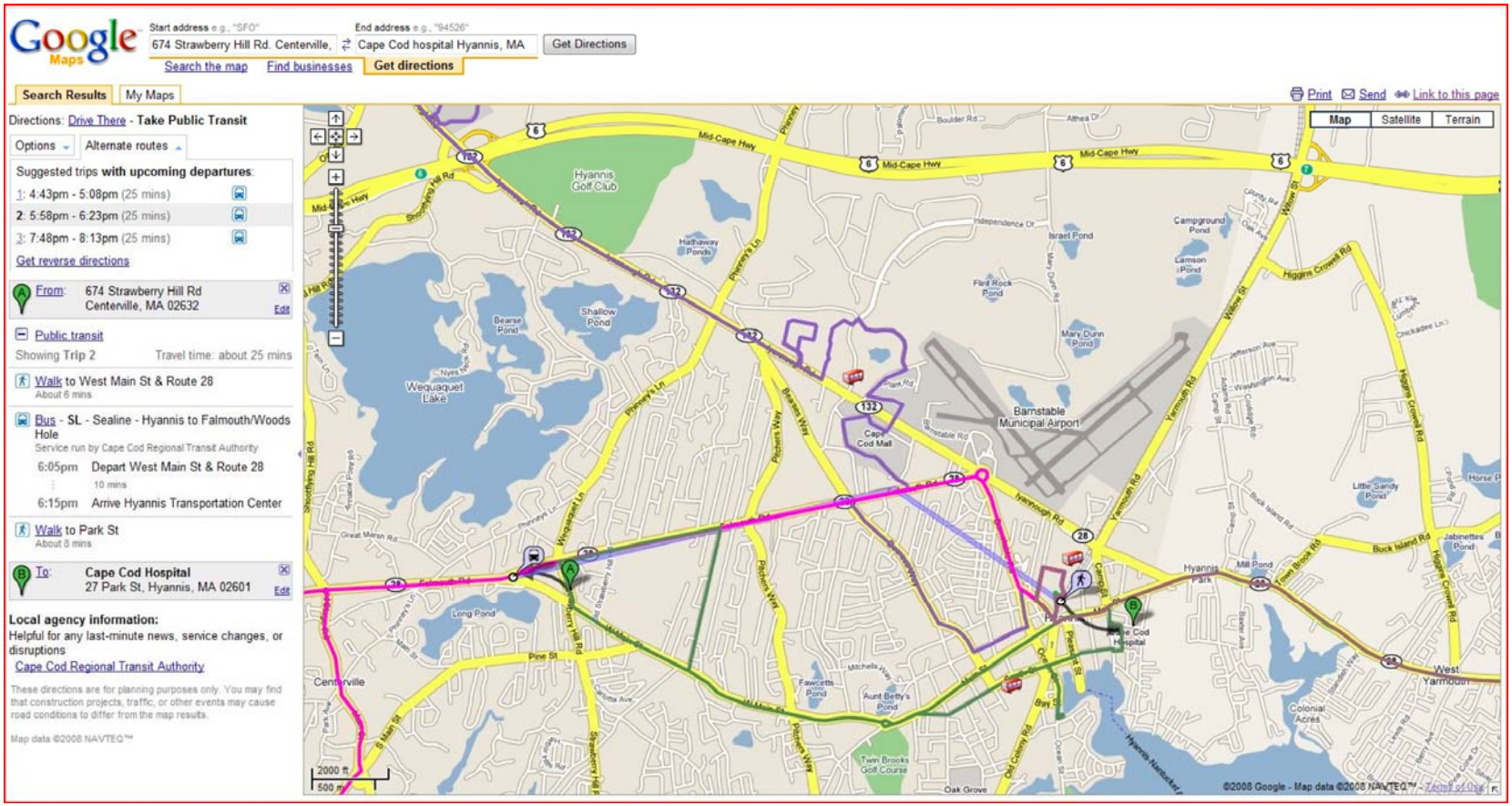
- Project Organization
- Project Purpose
- Project Deliverables to Date
- Problems and Opportunities
- Conclusions

Project Organization

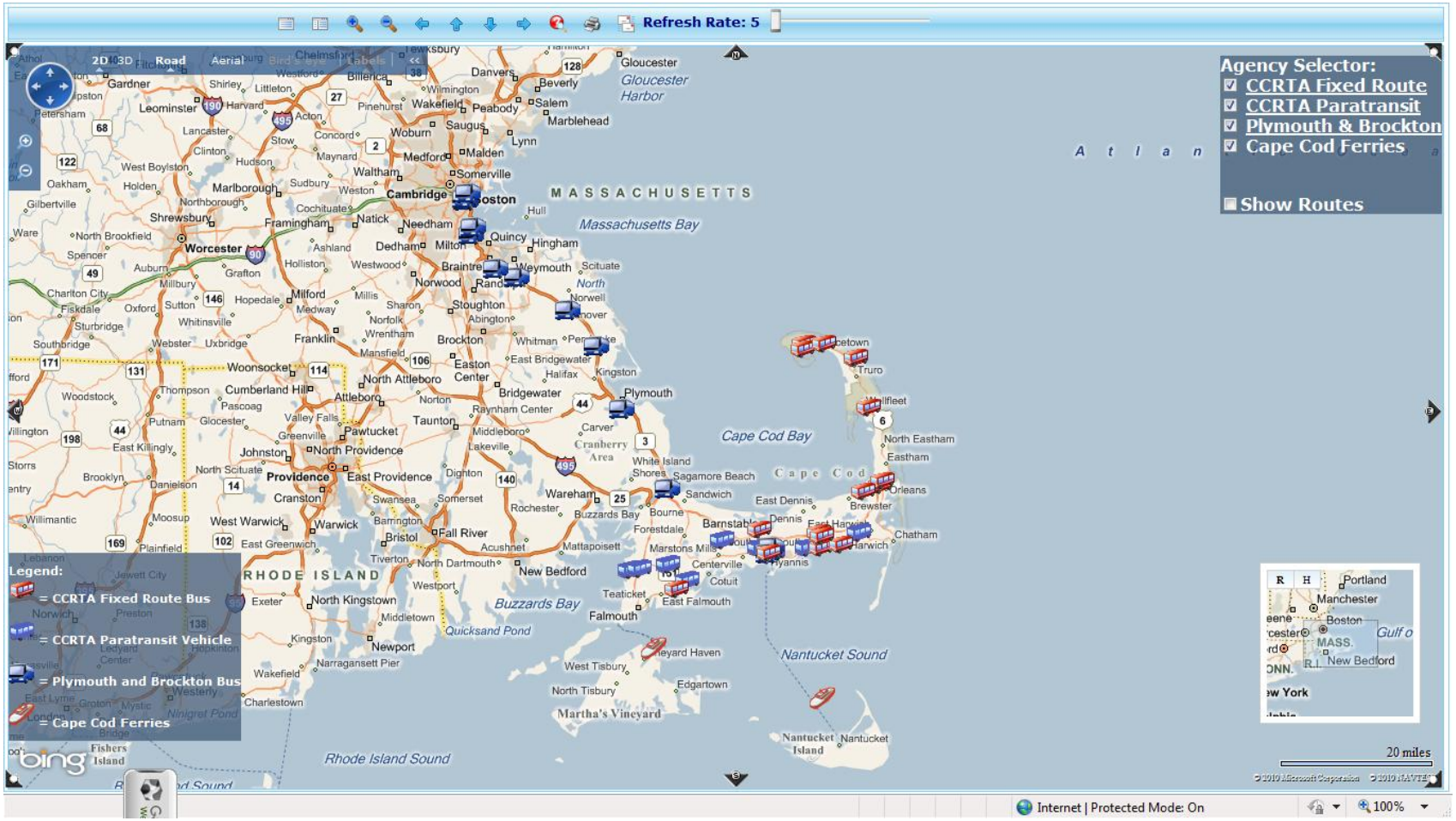
- A report on a task of the Cape Cod Regional Transit Authority's (CCRTA) American Recovery and Reinvestment Act (ARRA)Federal Economic Stimulus Project.
- CCRTA and Bridgewater State University (BSU) are public-public partners in a cooperative agreement to deploy applied research products and services to improve the region's tourist economy through improved intermodal transportation to and through the region – *Seamless Intermodalism*

Project Purpose

- Design and deploy real-time integrated intermodal traveler information on the Web.
  - Inter-regional and intra-regional intermodal trip planning on the Web (Google Transit)
  - Real-time web-mapping of inter-city buses and inter-city ferries with regional transit and paratransit.
  - Estimated Time of Arrival (ETA) and real-time location of transit vehicles to Web-based LCD displays, LED displays, smart phones and travel assistance devices (TAD).
  - Innovative and configurable LCD display for major trip attractors or generators.

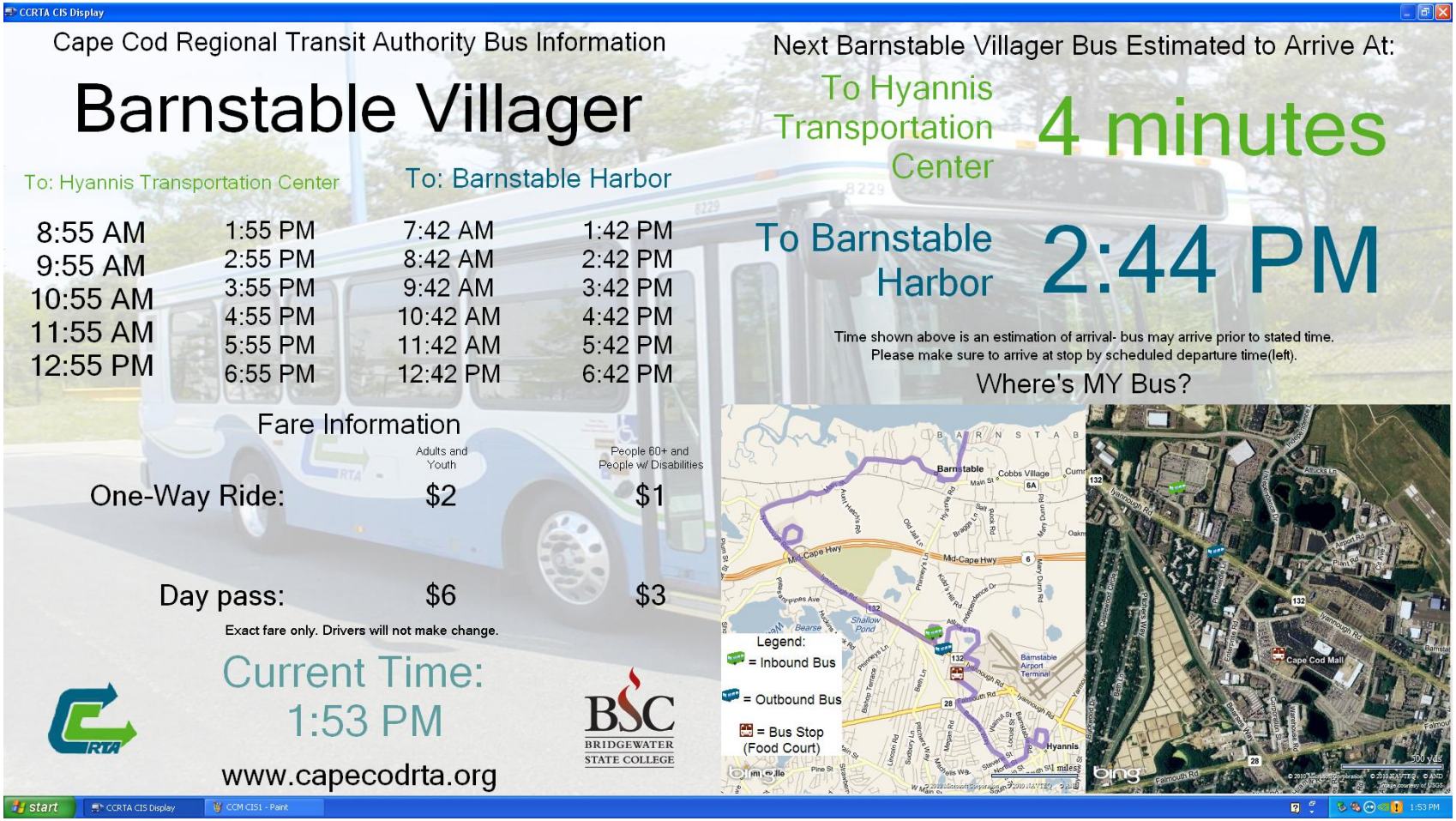

Google Maps
Start address e.g., "SFO"
674 Strawberry Hill Rd. Centerville,
End address e.g., "94526"
Cape Cod hospital Hyannis, MA
Get Directions
Search the map
Find businesses
Get directions
Search Results
My Maps
Print
Send
Link to this page
Directions: Drive There - Take Public Transit
Options
Alternate routes
Suggested trips with upcoming departures:
1: 4:43pm - 5:08pm (25 mins)
2: 5:58pm - 6:23pm (25 mins)
3: 7:48pm - 8:13pm (25 mins)
Get reverse directions
From: 674 Strawberry Hill Rd Centerville, MA 02632
Edit
Public transit
Showing Trip 2
Travel time: about 25 mins
Walk to West Main St & Route 28
About 6 mins
Bus - SL - Sealine - Hyannis to Falmouth/Woods Hole
Service run by Cape Cod Regional Transit Authority
6:05pm Depart West Main St & Route 28
10 mins
6:15pm Arrive Hyannis Transportation Center
Walk to Park St
About 8 mins
To: Cape Cod Hospital 27 Park St, Hyannis, MA 02601
Edit
Local agency information:
Helpful for any last-minute news, service changes, or disruptions
Cape Cod Regional Transit Authority
These directions are for planning purposes only. You may find that construction projects, traffic, or other events may cause road conditions to differ from the map results.
Map data ©2008 NAVTEQ™
Map
Satellite
Terrain
Hyannis Golf Club
Hathaway Ponds
Shallow Pond
Bearse Pond
Wequaquet Lake
Barnstable Municipal Airport
Cape Cod Mall
Campground Pond
Israel Pond
Lamson Pond
Flint Rock Pond
Mary Dunn Pond
Long Pond
Centerville
Fawcetts Pond
Aunt Betty's Pond
Twin Brooks Golf Course
Oak Grove
Hyannis Park
Mill Pond
Cape Cod Hospital
Colonial Acres
West Yarmouth
Little Sandy Pond
Jabinettes Pond
Mid-Cape Hwy
Route 132
Route 28
Route 6
Route 149
Route 28A
Route 134
Route 34
Route 30
Route 98
Yarmouth Rd
Ivanhoe Rd
Higgins Crowell Rd
Buck Island Rd
Town Brook Rd
Main St
Pine St
Pitchers Way
Wequaquet Ln
Phinneys Ln
Shootflying Hill Rd
Willow St
Camp St
Old Colony Rd
Ocean St
Hyannis-Nantucket
2000 ft
500 m
©2008 Google - Map data ©2008 NAVTEQ™ - Terms of Use

Intermodal Web AVL – work in progress

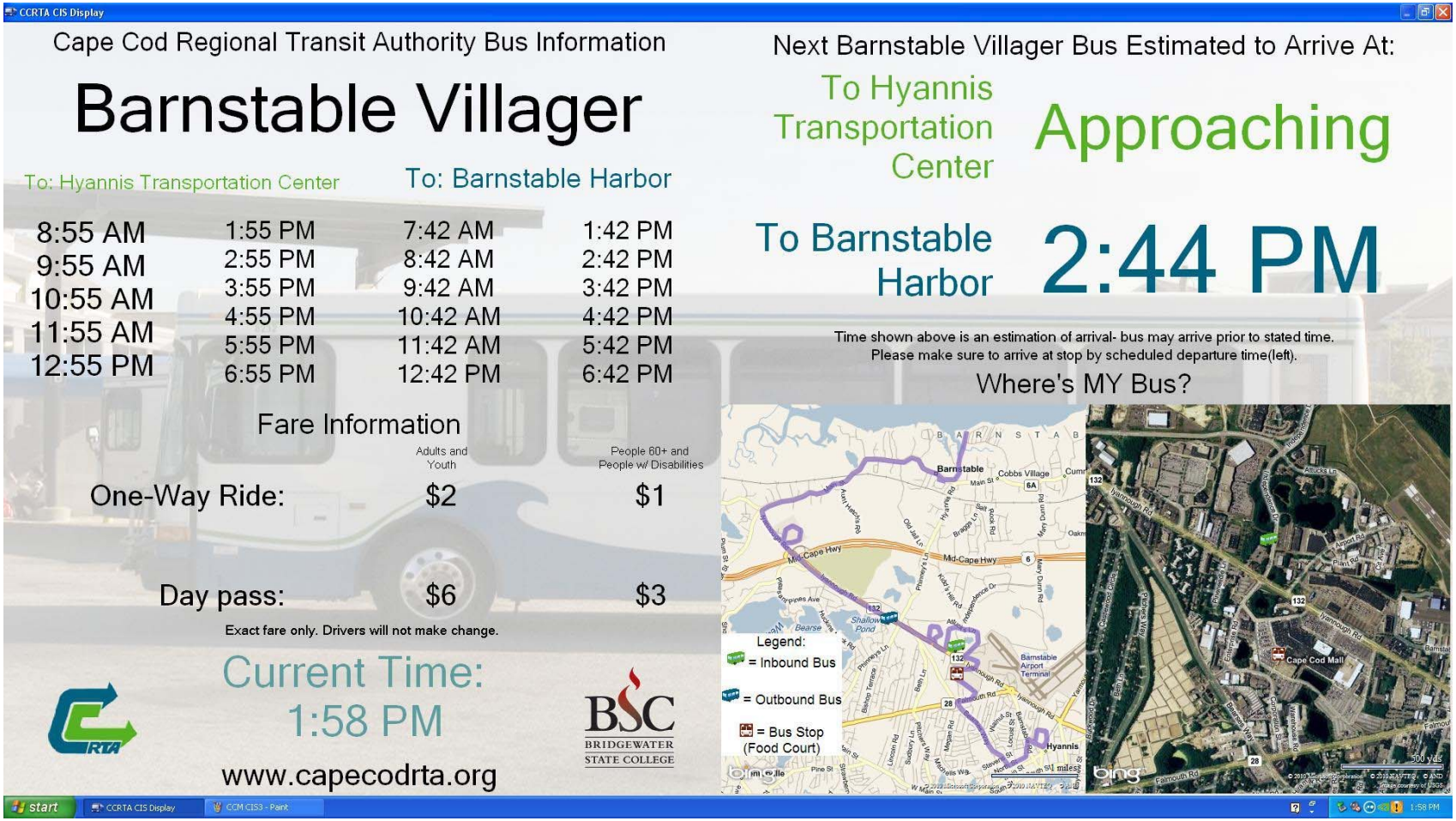


Food Court Pic

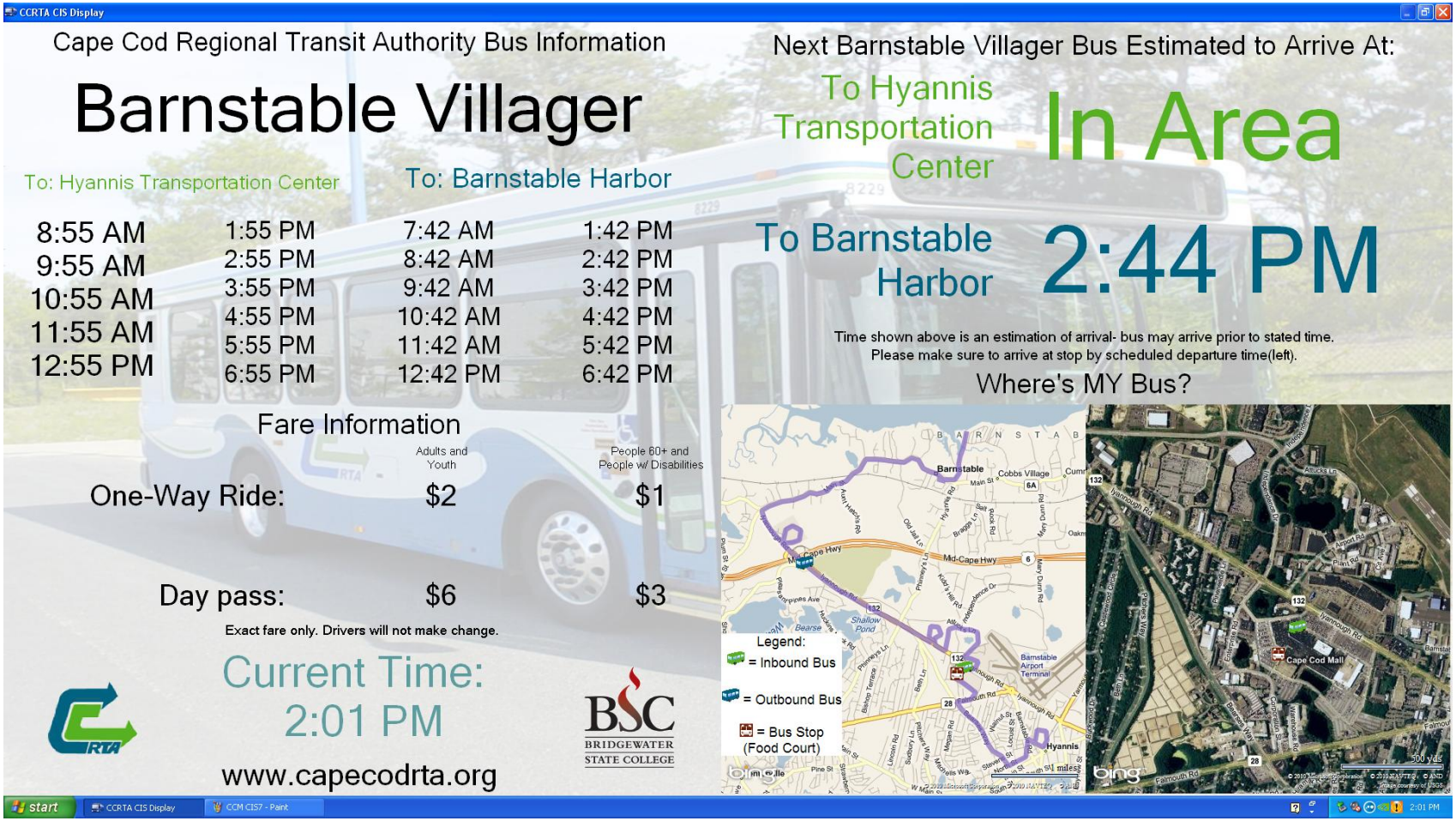
CIS 2


CCRTA CIS Display
Cape Cod Regional Transit Authority Bus Information
Barnstable Villager
To: Hyannis Transportation Center
8:55 AM
9:55 AM
10:55 AM
11:55 AM
12:55 PM
1:55 PM
2:55 PM
3:55 PM
4:55 PM
5:55 PM
6:55 PM
To: Barnstable Harbor
7:42 AM
8:42 AM
9:42 AM
10:42 AM
11:42 AM
12:42 PM
1:42 PM
2:42 PM
3:42 PM
4:42 PM
5:42 PM
6:42 PM
Fare Information
Adults and Youth
People 60+ and People w/ Disabilities
One-Way Ride: $2 $1
Day pass: $6 $3
Exact fare only. Drivers will not make change.
Current Time: 1:53 PM
www.capecodrta.org
BSC BRIDGEWATER STATE COLLEGE
Next Barnstable Villager Bus Estimated to Arrive At:
To Hyannis Transportation Center 4 minutes
To Barnstable Harbor 2:44 PM
Time shown above is an estimation of arrival- bus may arrive prior to stated time.
Please make sure to arrive at stop by scheduled departure time(left).
Where's MY Bus?
Legend:
= Inbound Bus
= Outbound Bus
= Bus Stop (Food Court)
Barnstable
Hyannis
Cape Cod Mall
start
CCRTA CIS Display
CCM-CIS1 - Paint
1:53 PM

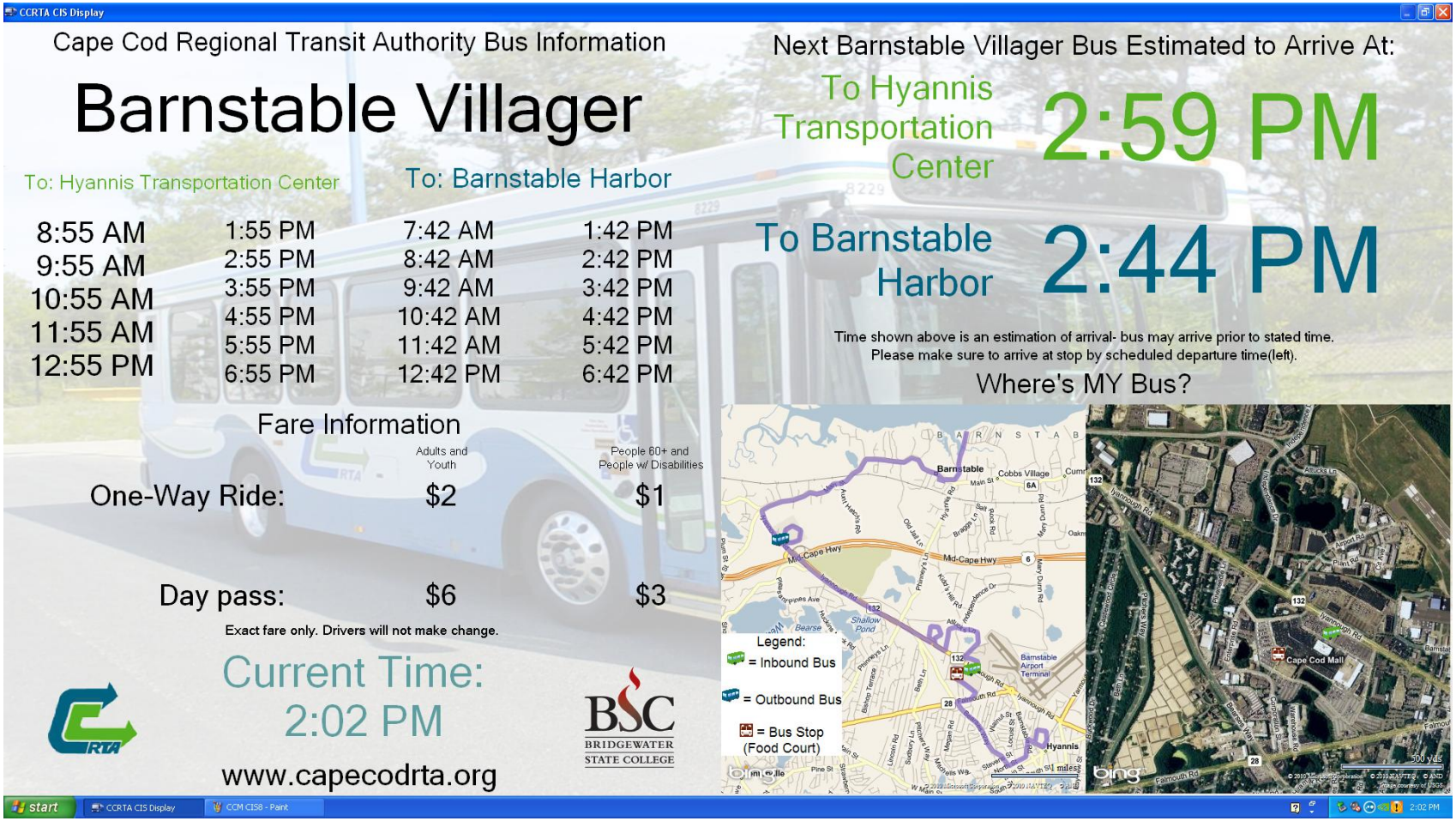
CIS 5


CCRTA CIS Display
Cape Cod Regional Transit Authority Bus Information
Barnstable Villager
To: Hyannis Transportation Center
To: Barnstable Harbor
8:55 AM
9:55 AM
10:55 AM
11:55 AM
12:55 PM
1:55 PM
2:55 PM
3:55 PM
4:55 PM
5:55 PM
6:55 PM
7:42 AM
8:42 AM
9:42 AM
10:42 AM
11:42 AM
12:42 PM
1:42 PM
2:42 PM
3:42 PM
4:42 PM
5:42 PM
6:42 PM
Fare Information
Adults and Youth
People 60+ and People w/ Disabilities
One-Way Ride: $2 $1
Day pass: $6 $3
Exact fare only. Drivers will not make change.
Current Time: 1:58 PM
www.capecodrta.org
BSC BRIDGEWATER STATE COLLEGE
Next Barnstable Villager Bus Estimated to Arrive At:
To Hyannis Transportation Center
Approaching
To Barnstable Harbor
2:44 PM
Time shown above is an estimation of arrival- bus may arrive prior to stated time.
Please make sure to arrive at stop by scheduled departure time(left).
Where's MY Bus?
Legend:
= Inbound Bus
= Outbound Bus
= Bus Stop (Food Court)
Barnstable
Hyannis
Cape Cod Mall
start
CCRTA CIS Display
CCM CIS3 - Paint
1:58 PM

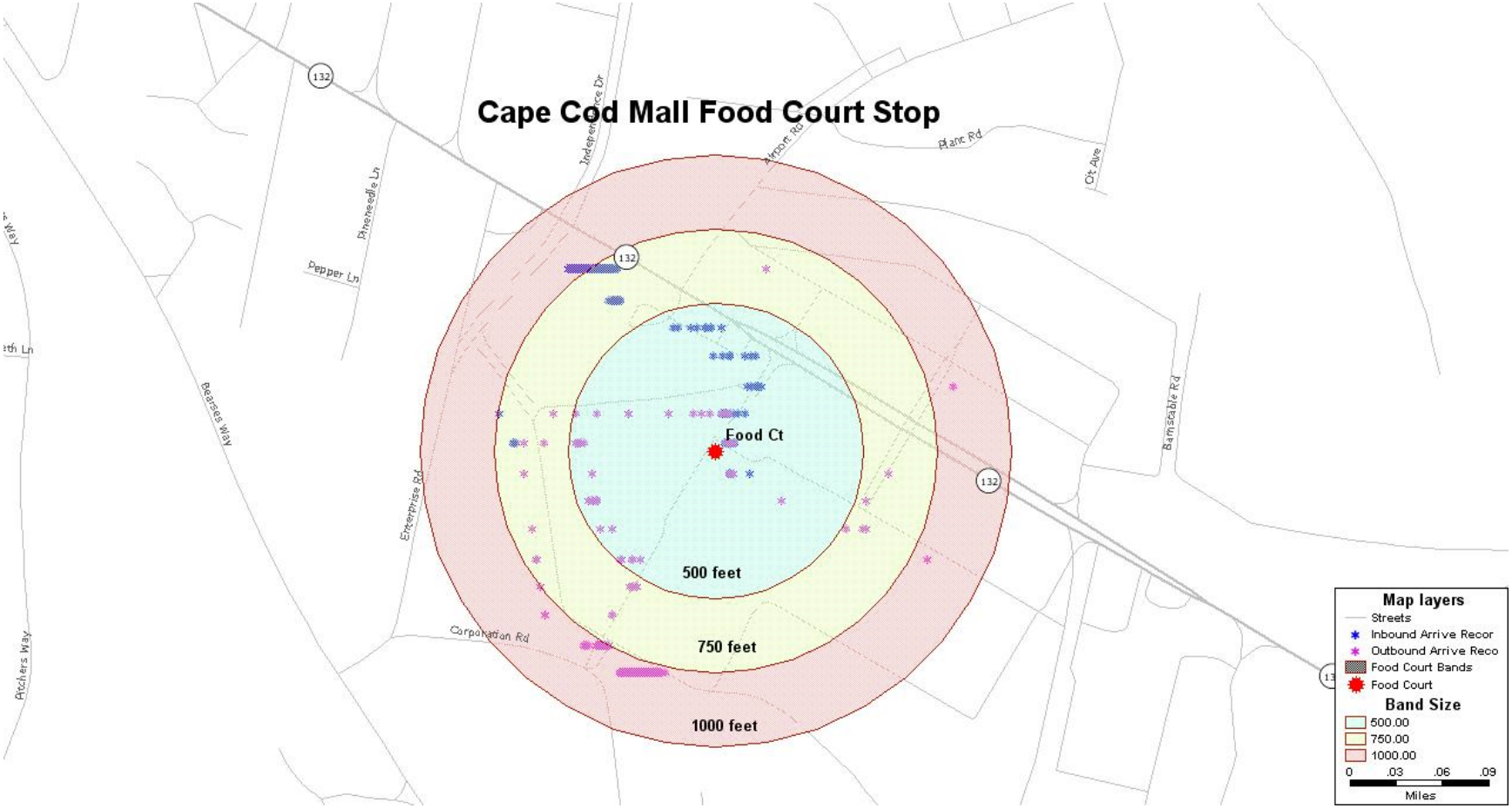
CIS 8


CCRTA CIS Display
Cape Cod Regional Transit Authority Bus Information
Barnstable Villager
To: Hyannis Transportation Center
To: Barnstable Harbor
8:55 AM
9:55 AM
10:55 AM
11:55 AM
12:55 PM
1:55 PM
2:55 PM
3:55 PM
4:55 PM
5:55 PM
6:55 PM
7:42 AM
8:42 AM
9:42 AM
10:42 AM
11:42 AM
12:42 PM
1:42 PM
2:42 PM
3:42 PM
4:42 PM
5:42 PM
6:42 PM
Fare Information
Adults and Youth
People 60+ and People w/ Disabilities
One-Way Ride:
$2
$1
Day pass:
$6
$3
Exact fare only. Drivers will not make change.
Current Time:
2:01 PM
www.capecodrta.org
BSC
BRIDGEWATER STATE COLLEGE
Next Barnstable Villager Bus Estimated to Arrive At:
To Hyannis Transportation Center
In Area
To Barnstable Harbor
2:44 PM
Time shown above is an estimation of arrival- bus may arrive prior to stated time.
Please make sure to arrive at stop by scheduled departure time(left).
Where's MY Bus?
Legend:
= Inbound Bus
= Outbound Bus
= Bus Stop (Food Court)
Barnstable
Hyannis
Cape Cod Mall
start
CCRTA CIS Display
CCM-CIS7 - Paint
2:01 PM

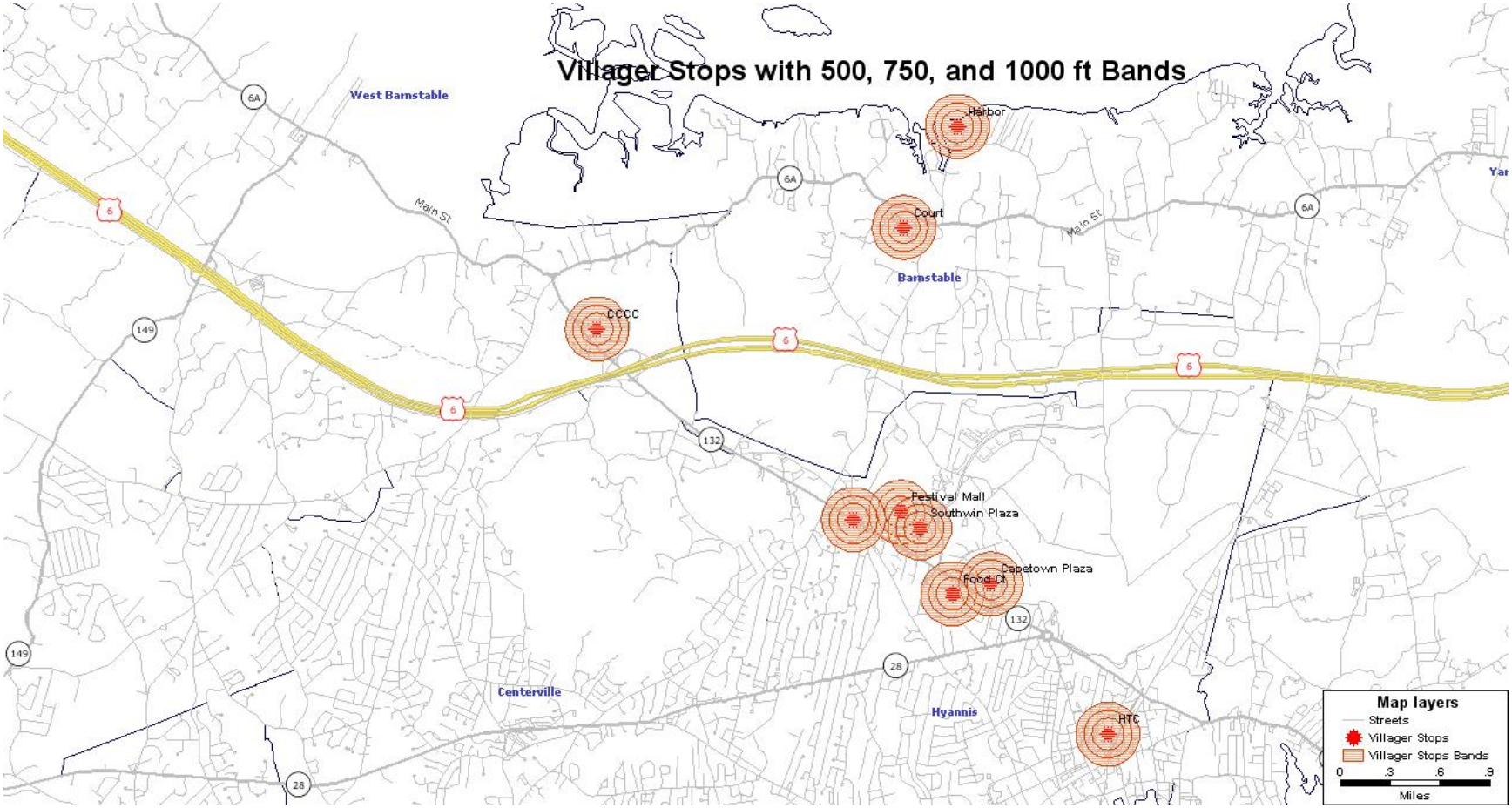
CIS 9


CCRTA CIS Display
Cape Cod Regional Transit Authority Bus Information
Barnstable Villager
To: Hyannis Transportation Center
8:55 AM
9:55 AM
10:55 AM
11:55 AM
12:55 PM
1:55 PM
2:55 PM
3:55 PM
4:55 PM
5:55 PM
6:55 PM
To: Barnstable Harbor
7:42 AM
8:42 AM
9:42 AM
10:42 AM
11:42 AM
12:42 PM
1:42 PM
2:42 PM
3:42 PM
4:42 PM
5:42 PM
6:42 PM
Fare Information
Adults and Youth
People 60+ and People w/ Disabilities
One-Way Ride: $2 $1
Day pass: $6 $3
Exact fare only. Drivers will not make change.
Current Time: 2:02 PM
www.capecodrta.org
BSC BRIDGEWATER STATE COLLEGE
Next Barnstable Villager Bus Estimated to Arrive At:
To Hyannis Transportation Center 2:59 PM
To Barnstable Harbor 2:44 PM
Time shown above is an estimation of arrival- bus may arrive prior to stated time.
Please make sure to arrive at stop by scheduled departure time(left).
Where's MY Bus?
Legend:
= Inbound Bus
= Outbound Bus
= Bus Stop (Food Court)
Barnstable
Hyannis
Cape Cod Mall
start
CCRTA CIS Display
CCM-CIS8 - Paint
2:02 PM

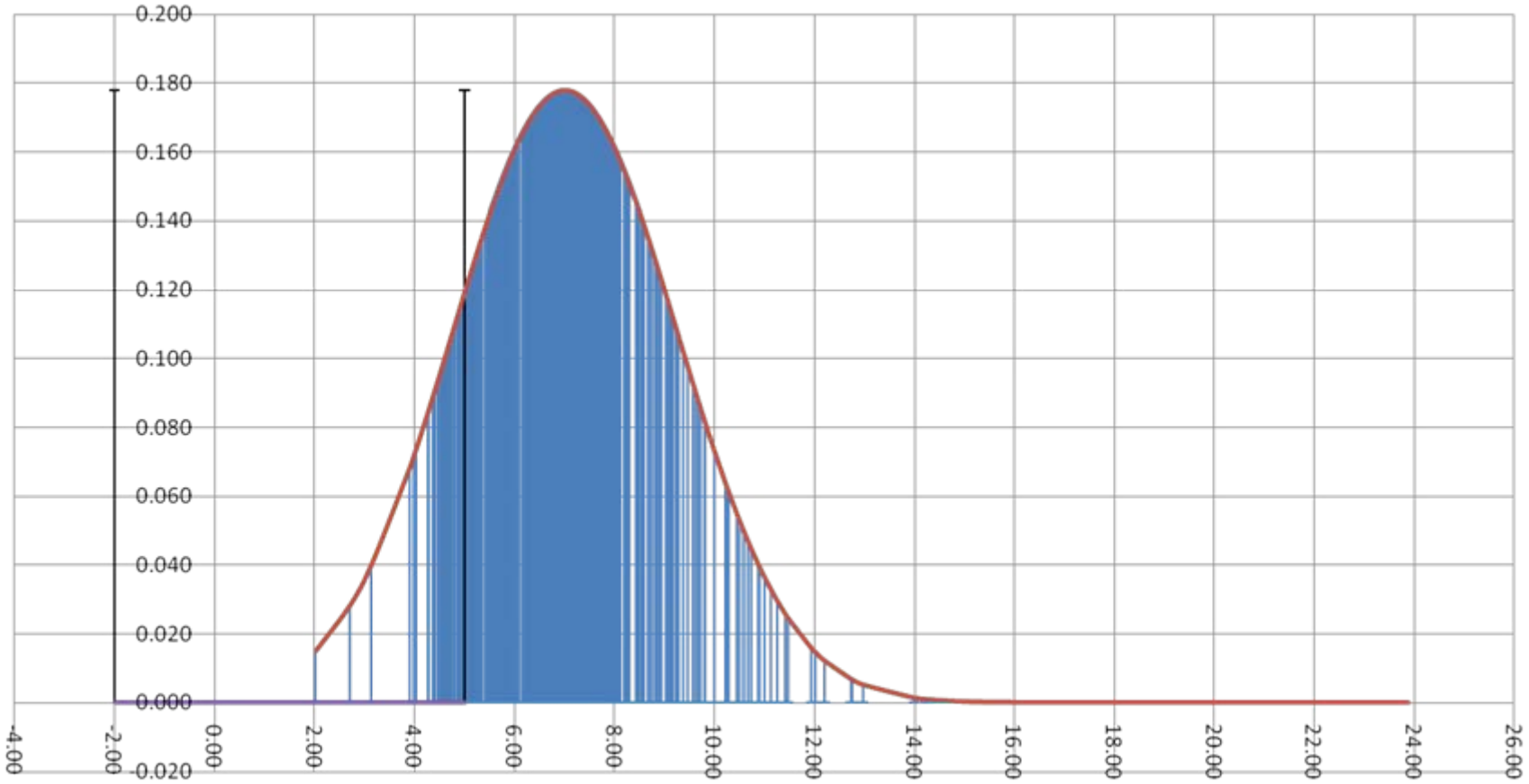
Arriving at “geofence” for ETA determination



Intersecting bus stop arrival issues



On-Time Performance CCM-Food Court – Summer 2009



Traveler using real-time tracking displays at Hyannis terminal

H2O line Hyannis Terminal Display

Hyannis to Orleans(H2O)

This Route Services:

BSC BRIDGEWATER STATE COLLEGE

Scheduled Inbound

Orleans - Stop Shop / Hyannis Transportation Center

6:45 AM	1:20 PM
7:55 AM	2:20 PM
9:20 AM	3:20 PM
10:20 AM	4:20 PM
11:20 AM	5:20 PM
12:20 PM	6:20 PM

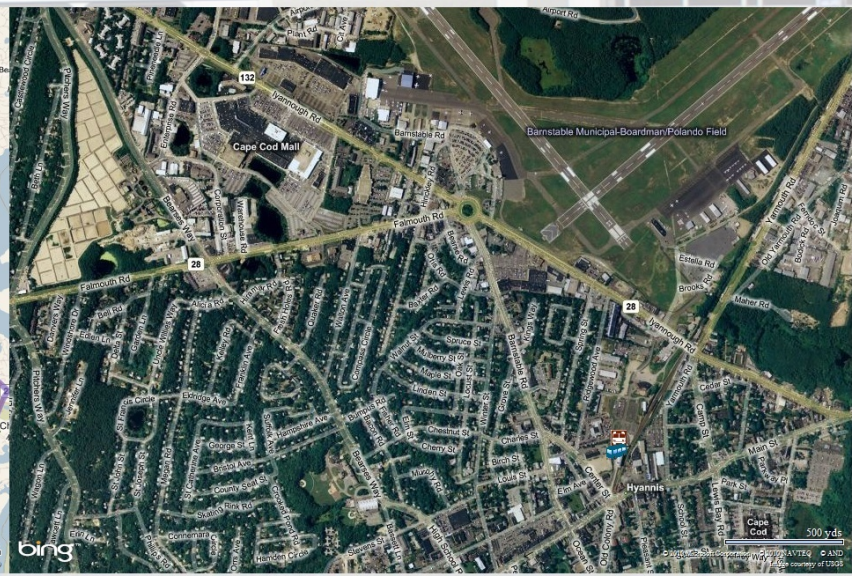
Scheduled Outbound

Hyannis Transportation Center / Orleans - Stop Shop

6:30 AM	12:30 PM
7:30 AM	1:30 PM
8:30 AM	2:30 PM
9:30 AM	3:30 PM
10:30 AM	4:30 PM
11:30 AM	5:30 PM

Cape Cod Hospital

Please Check Schedule for Details



Cape Cod ARRA Inter-City Bus

Hyannis Terminal Inter-City Web Tracking Displays – Bus and Ferries

Problems and Opportunities

- Google Transit Trip Planner for integrated seamless intermodal – requires very long lead time and brutal standards – but it is “free”.
- Multi-modal Real-Time Web Mapping is technologically easy but organizationally difficult.
- Estimated Time of Arrival Prediction – data integrity and on-time performance are particularly difficult in transit.
- Low-cost automatic vehicle/vessel location for modal partners is a good use of out-dated MDTs
- Alternative communication media/travel assistance devices are a real opportunity to provide mobility and access for persons with disabilities, senior citizens, and tourists.

Conclusions

- The CC_ARRA project provided the opportunity to assemble an informal group of modal executives to work on integrating customer information using state-of-the-art technology.
- The “public” nature of public transit can be a harsh environment for technology innovation.
- A focus on customer satisfaction can be the driving force for technology to provide seamless intermodalism.