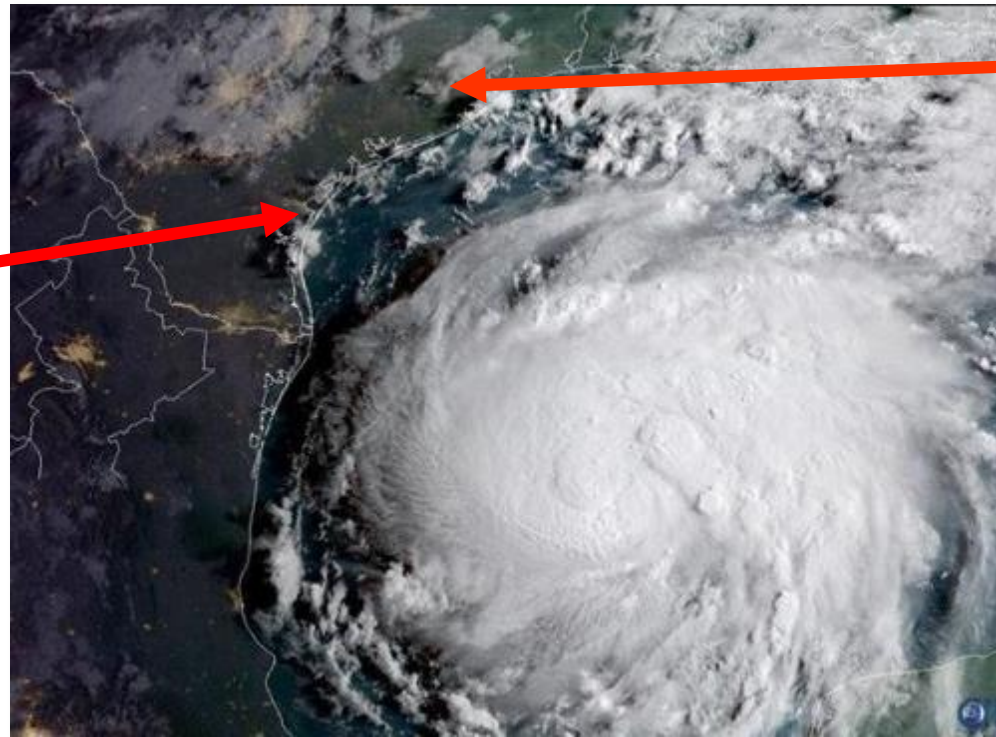


A TALE OF TWO CITIES: Responding to and Restoring Service After Harvey



**CORPUS
CHRISTI**

HOUSTON

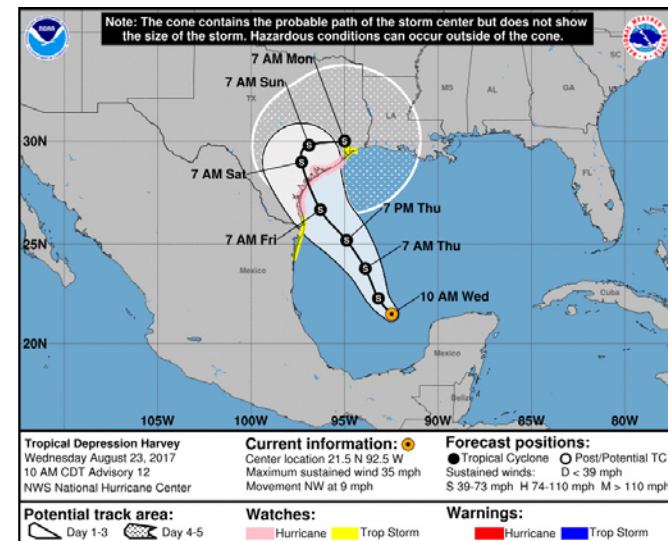
- **Gordon Robinson, Corpus Christi (CCRTA)**
- **Jim Archer and Mary Lawrence, Houston (METRO)**



2018 Sustainability & Multimodal
Planning Workshop

KEY PRESENTATION TAKE-AWAYS

- Overview of Corpus Christi RTA and Houston Metro
- How Two Different Sized Agencies Handled Hurricane Harvey Impacts
- Describe Benefits of Shared Experiences
- Lessons Learned for Future Events



CORPUS CHRISTI: THE “B”

- Began January 1, 1986
- Express, Fixed Route, Demand Response, Vanpool Services
- Population = 324,074+
- 841 Square Miles, 9 Communities
- 72 Peak Vehicles
- 5.4 Million Passenger Trips
- 4 Transfer Stations / 3 PNR



TIMELINE

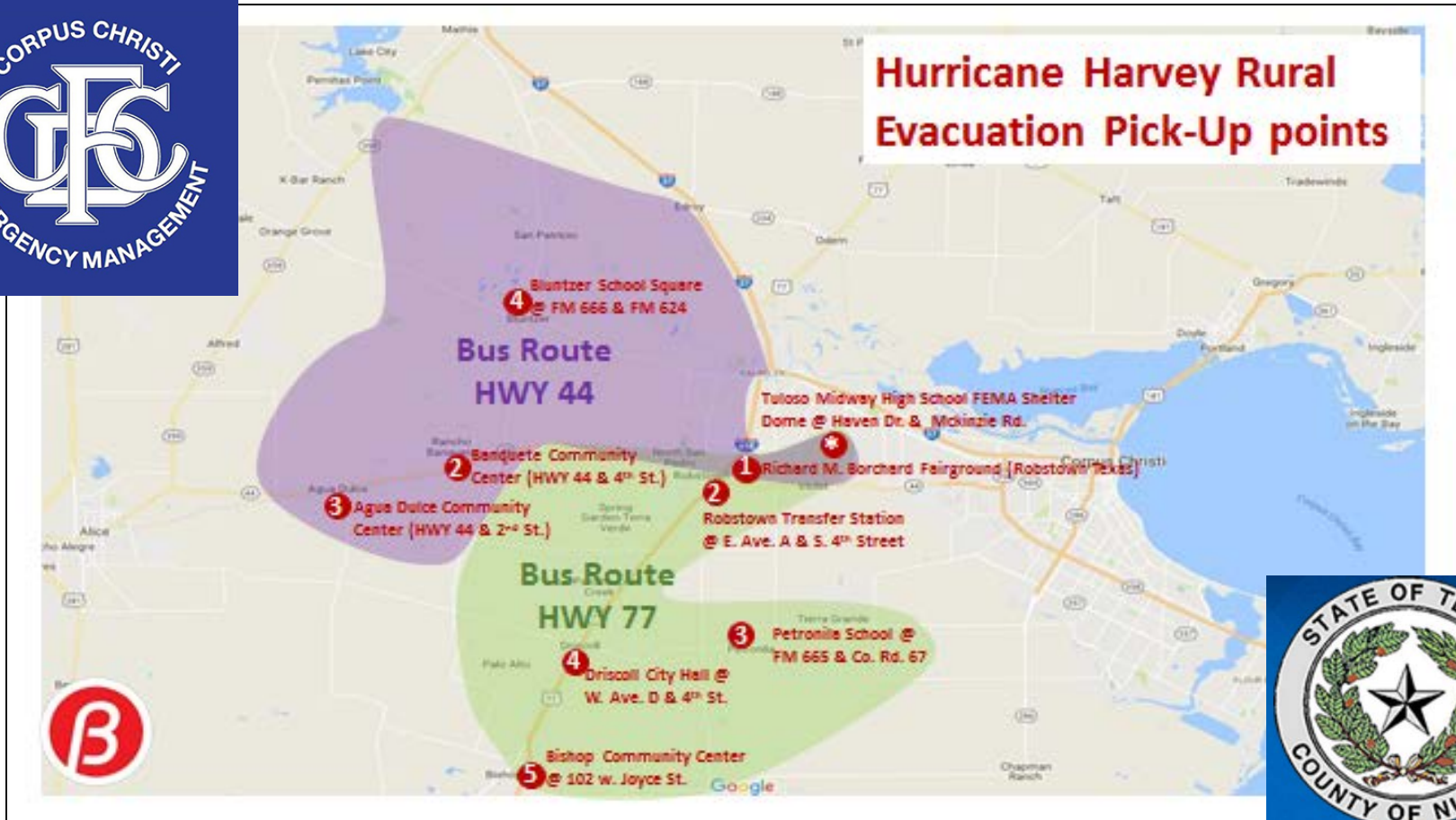
**Harvey
Makes
Landfall**



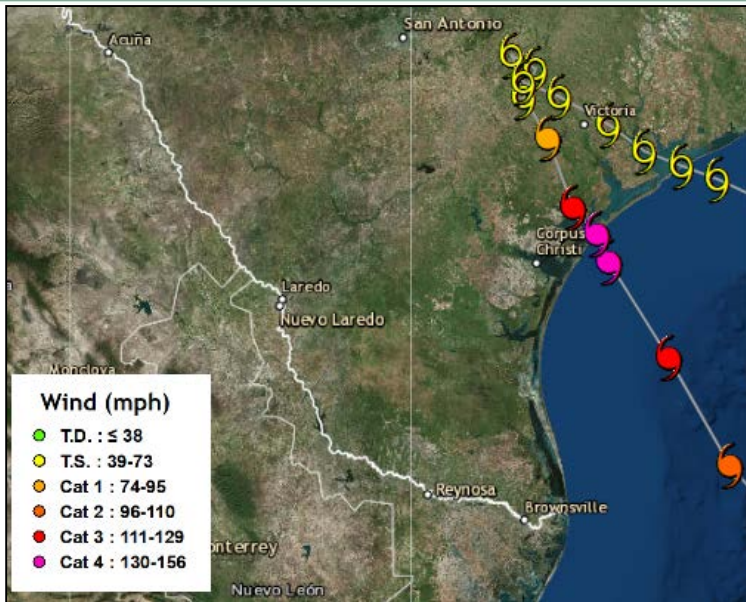
Date	Department/Division	Location of Activity	Action or Response
Thur. 8/24/2017	Planning	CCRTA Administration Offices	Prepared fleet Prepositioning Maps
Thur. 8/24/2017	Operations	Bear Lane	Prepared bus fleet
Fri. 8/25/2017	Planning	CCRTA Administration Offices	Prepared county evacuation route maps
Fri. 8/25/2017	Operations & Maintenance	Bear Lane Bus Yard, SSS & West Oso School	Prepositioned & Secured bus fleet & facilities
Sat. 8/26/2017	Administrative staff, Maintenance & Operations	Offices, Facilities, Stations, Bus stops & Bus Fleet	Inspected & Assessed Damages
Sun. 8/27/2017	Administrative staff, Maintenance & Operations	Offices, Facilities, Stations, Bus stops & Bus Fleet	Continued Assessment, Clean-up & Repair
Mon. 8/28/2017	Planning	CCRTA Administration Offices	Prepared Reduced Service map
Mon. 8/28/2017	Operations	All CCRTA Facilities	Clean-up & restoration of agency services
Tue. 8/29/2017	Planning	Admin Offices, SSS, STS, PAS & SPS	Prepared/posted Reduced Service maps
Tue. 8/29/2017	Operations	City wide	Resumed limited bus service
Wed. 8/30/2017	Planning	CCRTA Administration Offices	Prepared Reduced Service maps
Wed. 8/30/2017	Operations	City of CC & Nueces County	Continued limited service & assisted w/returning evacuees
Thur. 8/31/2017	Planning	CCRTA Administration Offices	Prepared pre & post storm power point presentation report
Fri. 9/1/2017			



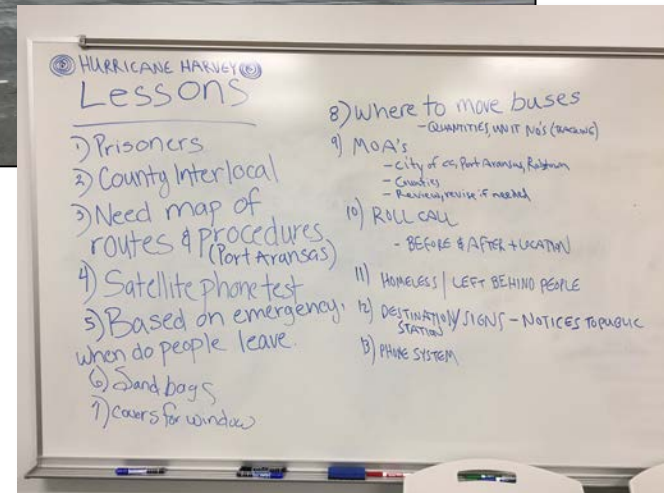
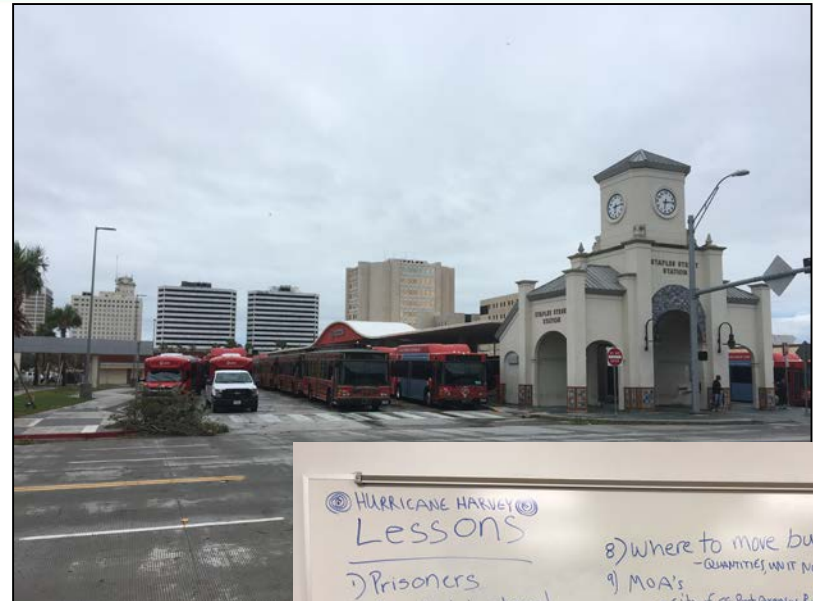
EMERGENCY PREPAREDNESS



HURRICANE APPROACHING



**First Category 4
Hurricane to hit
Corpus Christi in
56 years!**



POST STORM RESTORATION

Summary Slide of Route Start & Ending Times

Route 5s Alameda/Malls
8:15 am to 7:12 pm

Route 27s Leopard
8:13 am to 7:24 pm

Route 8s Flour Bluff/Malls
8:15 am to 7:42 pm

Route 29s Staples
8:15 am to 7:45 pm

Route 12s Hillcrest Saxet/Oak Park
8:15 am to 7:36 pm

Route 32s Southside/Malls
8:00 am to 6:53 pm

Route 15s Ayers/Molina
8:10 am to 7:23 pm

Route 37s Westside/Gollihar
7:50 am to 7:46 pm

Route 21s Arboleda
8:15 am to 7:40 pm

Route 66s TAMUCC Connection
8:45 am to 7:15 pm

Route 24s Los Encinos/Kostoryz
7:45 am to 7:38 pm

Route 76s Harbor Bridge Shuttle
10:20 am to 7:10 pm

Bus Route 21
Stop #273
to National Guard
Armory
Please Wait Here



Summary of Bus Route Services ending at 8:00 PM Wednesday, August 30, 2017 *Free Fares*



Route 4 Flour Bluff	Route 26 Airline/Lipes
Route 5s Alameda/Malls	Route 27 & 27s Leopard
Route 8s Flour Bluff	Route 29 & 29s Staples
Route 12s Hillcrest/Saxet/Oak Park	Route 30 Westside/Health Center
Route 15s Ayers/Molina	Route 32 & 32s Southside
Route 16 Morgan	Route 34 Robstown North
Route 17 Carroll/Southside	Route 35 Robstown South
Route 19 Ayers	Route 37 & 37s Westside/TAMUCC
Route 21 & 21s Arboleda	Route 63 The Wave
Route 23 Molina	Route 66s TAMUCC Connection
	Route 76s Harbor Bridge Shuttle



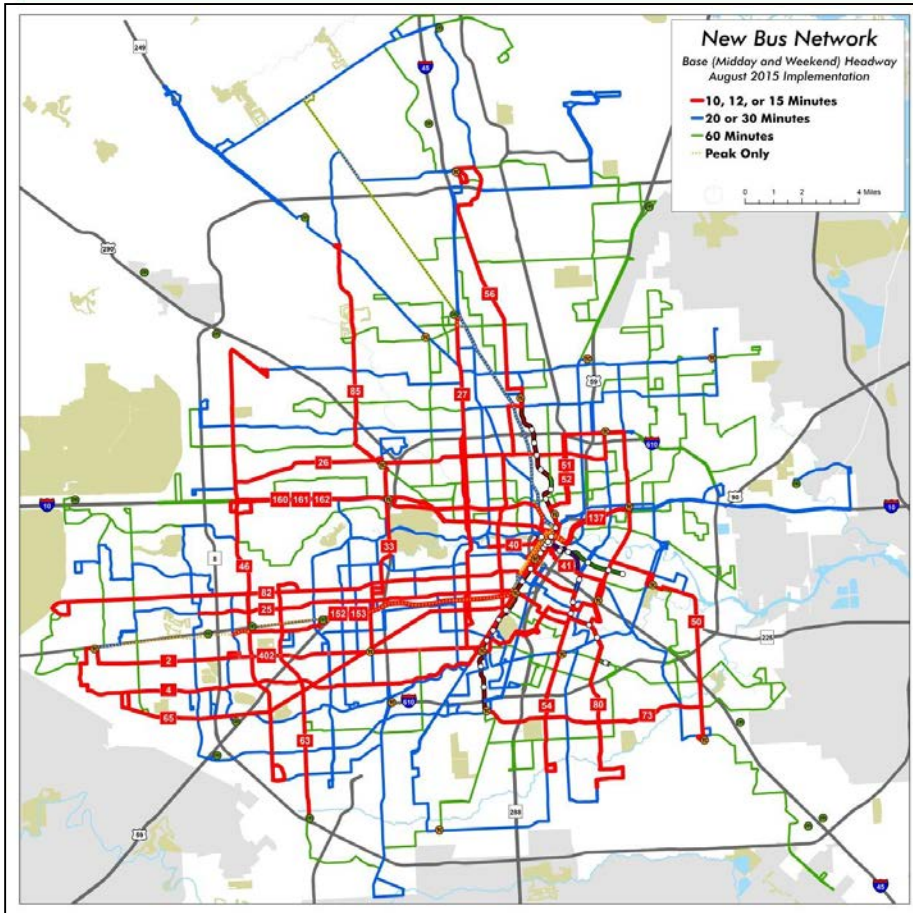
POST STORM RESTORATION



Don't forget to request a National Transit Database waiver to avoid losing federal funding after a natural disaster.



HOUSTON



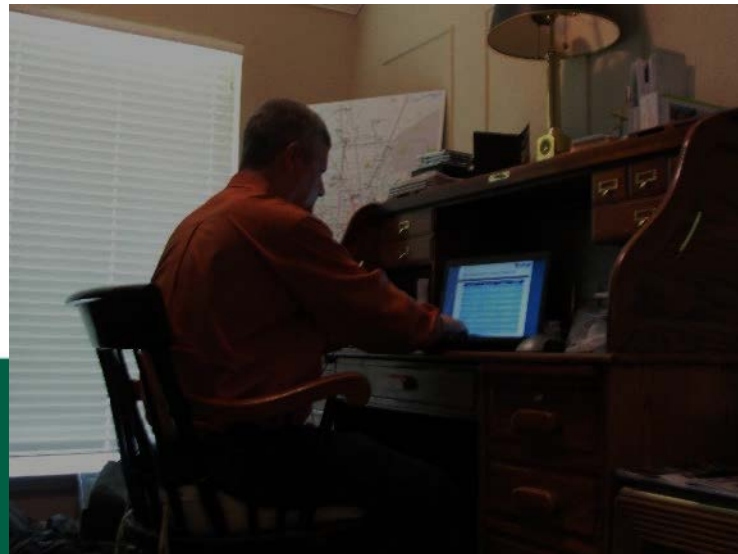
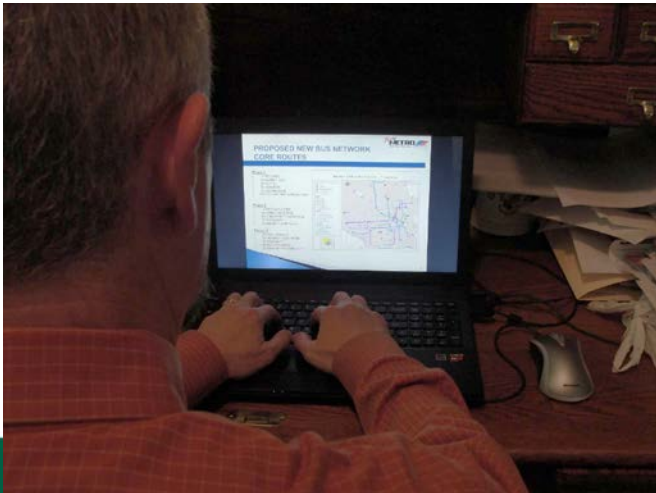
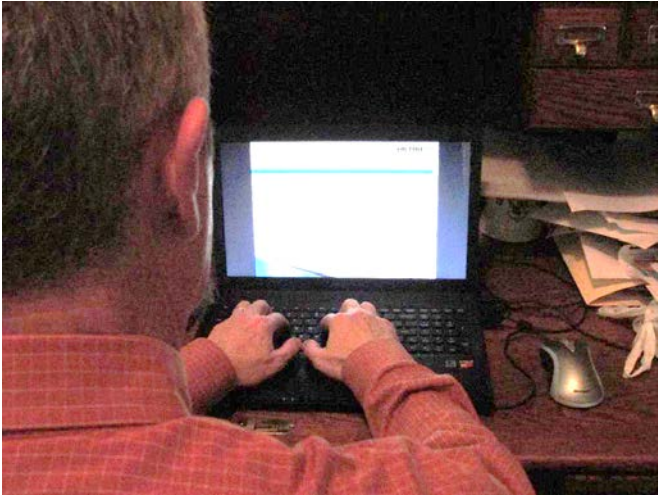
Category	By The Numbers
Service Area	1,303 sq. mi.
Boardings / Routes (FY2017)	
Local Bus	57.9M 83 routes
Park & Ride Bus	7.7M 30 routes
Light Rail	18.4M 3 lines
Paratransit	1.9M
Bus Stops	9,100
Passenger Shelters	2,200

WHEN IT RAINS...

Dates	Service Status
Sat. Aug. 26, 2017	Service ends early
Sun. Aug. 27 – Wed. Aug. 30, 2017	Service suspended – heavy, record-setting rainfall
Thu. Aug. 31, 2017	Core service restored
Fri. Sep. 1 – Sun. Sep. 11, 2017	Phased service restoration



WORKING IN THE ELEMENTS

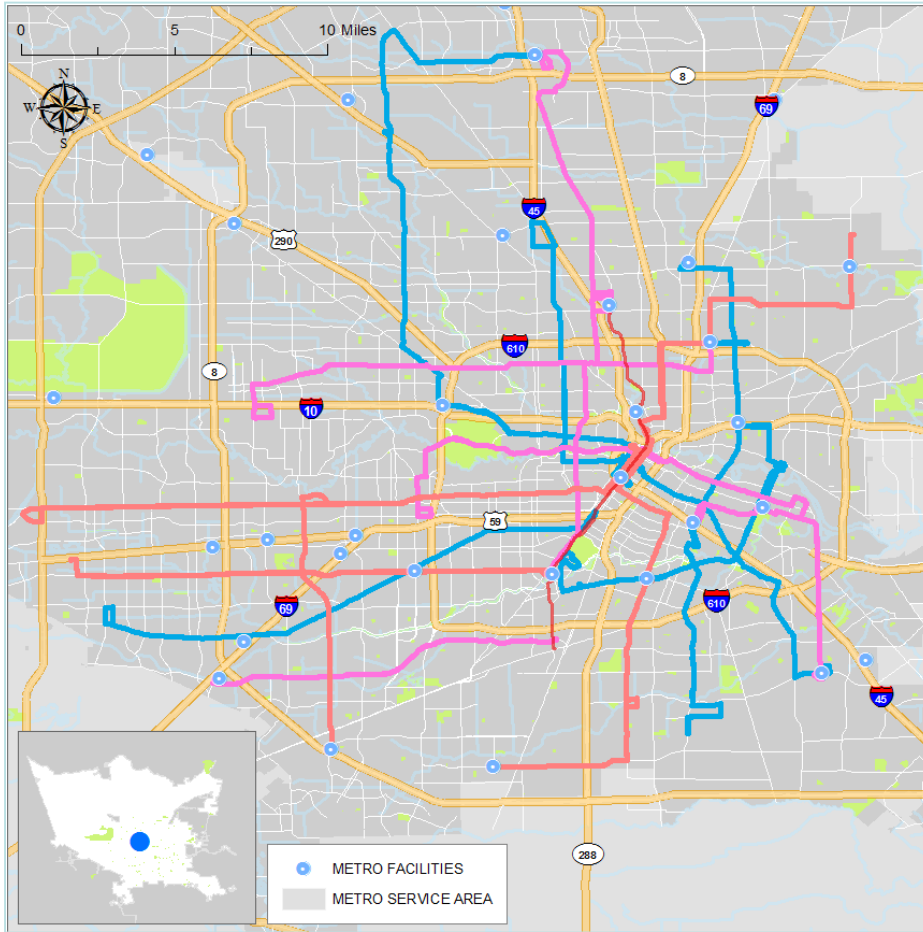


THE INFORMATION YOU HAVE

RESOURCES NEEDED	RESOURCES AVAILABLE
Available Number of Operators?	Uh, no...we don't have that data.
Available Number of Buses?	Uh, not that either...
Number and area of cleared / non-flooded streets?	Not really...
Timing for implementation?	Well, as soon as possible. You see THIS IS AN EMERGENCY!

“Houston, we have a problem...”

START WITH THE CORE



- Access to public facilities
- High ridership
- Geographic balance
- Committed to operate at least once every 30 minutes – more frequently when operators / buses become available if that is normal schedule

YOU MAKE THE CALL...
AND IT BETTER BE RIGHT

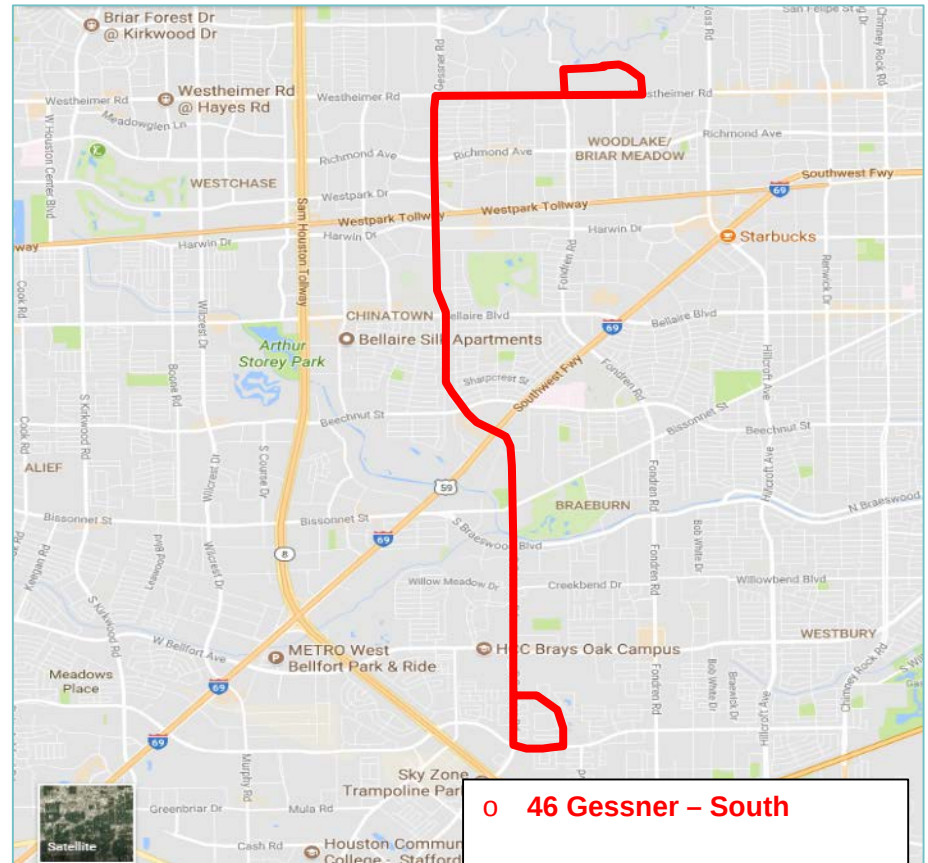
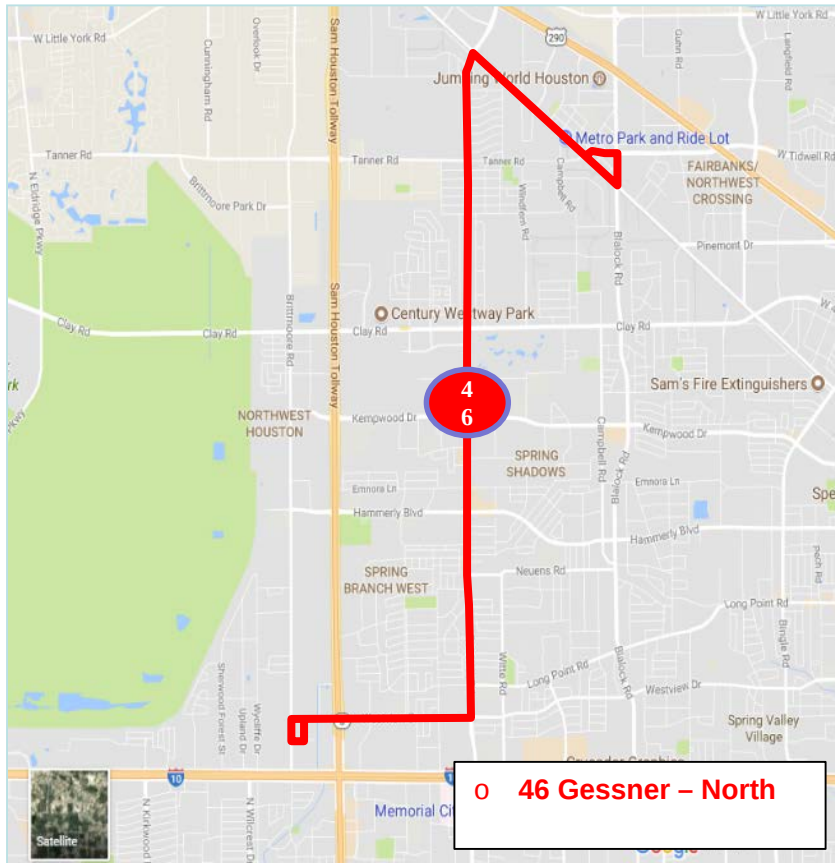


ONE TOUGH CALL - 46 GESSNER CUT IN TWO BY FLOODING

- **RED** frequent) route with service every 15 minutes
- High ridership:
- 6,300 weekday boardings (5th overall)
- 4,500 Saturday boardings (4th overall)
- 3,500 Sunday boardings (6th overall)
- Flooding in center of route combined with significant distances between non-flooded north/south street options makes operation of entire route impossible
- **Opportunity to operate safely between Tanner Road and Westview (north of flooding) and between Westheimer and West Airport (south of flooding)**



CUT IN TWO, SO... TWO NEW TEMPORARY ROUTES



WHAT WE HOPED...

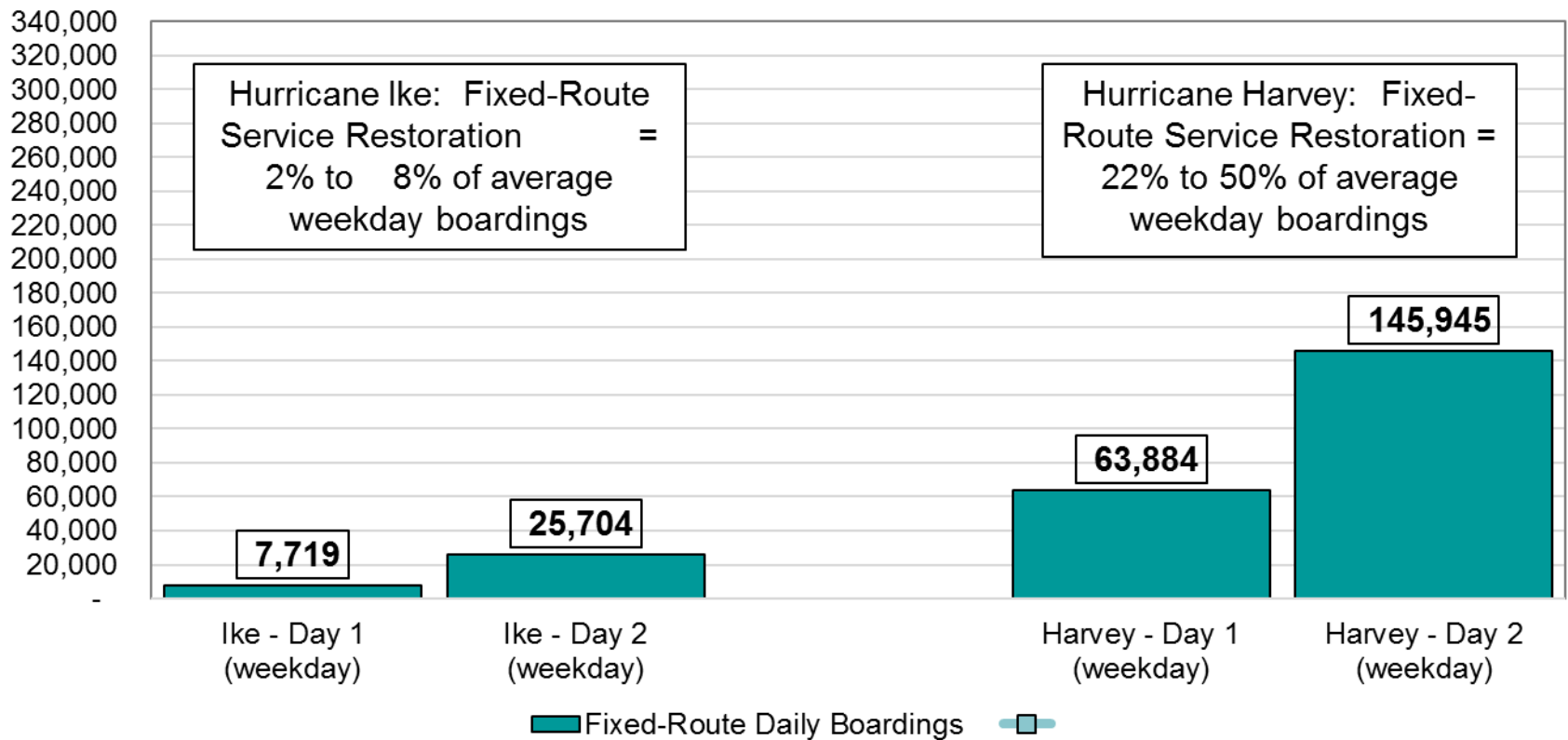
ESTIMATED NUMBER OF CURRENT PASSENGER BOARDINGS SERVED RIDERSHIP			
ROUTE	WEEKDAY	SATURDAY	SUNDAY
46 GESSNER NORTH	1,400 - 1,600	1,000 – 1,200	800 – 1,000
46 GESSNER SOUTH	3,700 - 3,900	2,600 – 2,800	2,000 – 2,200
TOTAL	5,100 – 5,500	3,600 – 4,000	2,800 – 3,200
AVERAGE DAILY	6,300	4,500	3,500
Boardings Without Service (% of Total)	800 – 1,200 (13 – 19%)	500 – 900 (11 – 20%)	300 – 700 (9 – 20%)

WHAT WE GOT...

ESTIMATED NUMBER OF CURRENT PASSENGER BOARDINGS SERVED RIDERSHIP			
ROUTE	WEEKDAY	SATURDAY	SUNDAY
46 GESSNER NORTH	1,400 - 1,600	1,000 – 1,200	800 – 1,000
46 GESSNER SOUTH	3,700 - 3,900	2,600 – 2,800	2,000 – 2,200
TOTAL	5,100 – 5,500	3,600 – 4,000	2,800 – 3,200
ACTUAL	N / A	3,834	2,786

IMPACT OF PHASED SERVICE RESTORATION

**Hurricanes Ike and Harvey - Fixed-Route Service Restoration
Daily Boardings - First Two Days of Restoration**



WHAT TO DO

- **A**dopt a base plan before the natural disaster strikes
- **D**evelop a defensible approach for restoring service
- **A**ssume nothing and be very flexible
- **P**lan to use the resources you have, not the ones you don't have or may not get back
- **T**horoughly evaluate during and after