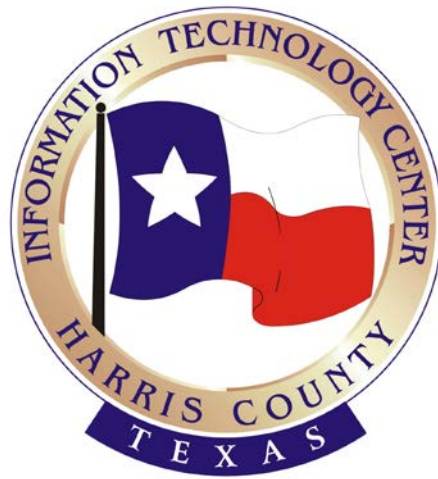


**HARRIS COUNTY**  
**INFORMATION TECHNOLOGY CENTER**  
**REGIONAL RADIO CENTER**

**MG Rick Noriega (Ret.), Chief Information Officer**



***APPLICATION FOR REGION 51***  
***RADIO SPECTRUM***

Presented by Regional Radio Center

Greg Jurrens, Senior Manager, Regional Radio Center

**June 2021**

Mr. Robert Howard, Chairman  
NPSPAC Region 51  
Harris County Radio Services  
Public Safety & Technology  
2318 Greens Rd.  
Houston, Texas 77032

Dear Chairman Howard:

Harris County requests to add six 700 MHZ. frequencies

769.79375

771.36875

771.61875

771.79375

773.39375

774.88125

to the Northwest Simulcast to relieve channel congestion.

The appropriate APCO and FCC forms have been completed and are attached.

Implementation will be complete within twelve (12) months after the FCC has authorized the request of frequencies.

Sincerely,

Greg Jurrens, Senior Manager  
Harris County Information Technology Center

**To Whom It May Concern:**

**Radio Communications**

**Adjacent Channel Interference**

In all Harris County radio planning, careful attention is given to minimize radio interference on all radio channels. Most interference can be minimized through proper planning and engineering. However, in some cases, even where proper engineering has been employed, interference can be caused by equipment failure and/ or poor servicing techniques.

Concerning any or all Harris County radio sites and/or channels, Harris County Regional Radio Center is dedicated to the highest standards and performance that can be obtained in the industry. In the event of adjacent channel interference, or any type of interference which is caused radio equipment owned and maintained by Harris County, Harris County will correct the problem with its equipment or cease operation on that radio channel until the problem is resolved. If the interference cannot be remedied through normal techniques, and there is no equipment problem, Harris County will remove, re-license, and relocate the interfering radio channel to a new licensed physical location to resolve the problem and to adhere and conform to all standards approved in the NPSPAC Region 51 Plan.

Greg Jurrens, Senior Manager  
Regional Radio Center  
Harris County Information Technology Center

# **REGION 51 APPLICATION FOR RADIO SPECTRUM FROM HARRIS COUNTY**

Note: The following document is required for each applicant.

## **SYSTEM DESIGN**

Harris County requests to add six frequencies to the Northwest Simulcast to help relieve frequency congestion.

## **FUNDING STATEMENT**

The equipment and / or upgrades for existing equipment have been purchased by Harris County.

## **IMPLEMENTATION SCHEDULE**

The County intends to have the additional sites and repeaters fully implemented on the System within twelve (12) months after receiving the frequencies.

## **EXISTING FREQUENCY STATEMENT**

Harris County currently operates in cooperation with Chambers County, Ft Bend County, Brazoria County, City of Pasadena, League City, Walker County, Missouri City, Matagorda County, and Montgomery County System owners through interlocal agreements a 263 channel 800 MHz trunked radio system reusing frequencies and Dynamic Frequency Blocking (DFB) where tower separation allows. We are also implementing a fully digital P25 system.

## **APPLICANT GENERAL INFORMATION - SECTION A**

1. Name of Applicant: Harris County
2. Name of Preparer: Patrick Burleson
3. Title: Radio Systems Coordinator
4. Mailing Address: 406 Caroline 4<sup>th</sup> Floor  
Houston, Texas 77002-2027
5. Telephone Number: 713-274-7716
6. Residential Population: Population, 2019 4.713 million
7. Harris County Population: Population, 2019 4.713 million
8. Business/Tourist Population:
9. Square Mile Area: 12,500 (HGAC figures)
10. Unique Geographic Considerations:

The Regional Radio System ground elevation at its southern end is at or near sea level while areas in the northern end of the region are heavily wooded.

11. Unique Demographic Considerations:

- 1 Southern Region is home to several petrochemical industrial facilities.
- 2 The Port of Houston is a 25-mile-long complex of diversified public and private facilities located just a few hours' sailing time from the Gulf of Mexico. The port is ranked first in the United States in foreign waterborne tonnage (14 consecutive years); first in U.S. imports (19 consecutive years); second in U.S. export tonnage and second in the U.S. in total tonnage (19 consecutive years).
- 3 Home of George Bush Intercontinental Airport the 8th busiest airport in the U.S. for total passengers, and 7th largest international passenger gateway in the Nation

4 Houston is the fourth largest city in the U.S.

12. List all Departments/Divisions within above Applicant which have separate Communications Systems **None**

## **DEPARTMENT / DIVISION FREQUENCY USE SECTION B**

### **Note: One Section B is required For Existing Channel**

1. Name of Applicant **Harris County**
2. Name of Department/Division: **Information Technology Center**
3. Number of Personnel in this Department/Division which regularly use radios (excluding dispatchers) **18,200**
4. Carrier Frequency: **700 MHz Trunking, 700 MHz Trunking (see attached copy of FCC license)**  
Is this part of a Trunked System? **YES**  
  
Is this Part of a Mutual Aid System? **YES**
5. FCC assigned call sign(s): **WNBZ674, WPGD390, WPKL474, WPPF214, WPVC326, WPVK276, WPXP610, WQBM285, WQDW910, WQET713, WQGG825, WQJH486, WQJH488, WQJH490, and WQJK321.**
6. FCC Part 90 Service Category: (Local Government Radio Service, Police Radio Service, Highway Maintenance Radio Service, Forestry-Conservation Radio Service, Special Emergency Radio Service, other) **Police Radio Service**
7. Station Classification from License: (Voice, Data/Telemetry, Base Station [FB], Mobile Relay [FB2], Control Station [FX1], other) **FB2, FX1, MO**
8. Number of Mobiles in service and in operation currently on this frequency (not including "Convertacom" units) **142,280**
9. Number of Portables (handhelds) in service and in operation currently on this frequency not including spare units: **11,660**  
How many of these are used with a convertacom? **0**  
How many of these same units are listed on other frequencies?  
List quantity of frequencies: **0**
10. How many individual radio transmissions occur during an average 24-hour period? (Indicate estimated or measured) **624,930 measured**

11. How many of these transmissions occur per hour during peak periods? (Indicate estimated or measured) 13,512 measured
12. If this is a voice channel, what is the typical airtime per individual transmission? (Less than five seconds, more than five seconds but less than ten seconds, more than ten seconds) Four (**4**) **seconds average** (measured)

## **ADDITIONAL INFORMATION SECTION C**

**Note: One SECTION C is required for each department/division**

1. Name of Applicant: Harris County
2. Name of Department/Division: Information Technology Center
3. How many channels are being requested for this division?  

6 six frequencies
4. State the intended use for the frequencies and the proposed system structure and spectrum considerations (interoperability):  

Intended use is for public safety trunked system in the **700 MHz band**.
5. What frequency band is desired for the new frequency? **700 MHz**
6. Explain requirements for the selected band and reason why other spectrum will not suffice: **availability of frequencies**.  

Harris County requests to add six frequencies to provide needed additional capacity in Northwest Simulcast.

**SHORT FORM**  
**PUBLIC SAFETY PLANNING COMMITTEE FREQUENCY**  
**ASSIGNMENT REQUEST**  
For the 800 / 735MHz Band  
For inclusion as part of the  
**REGION 51 Public Safety Communications Initial Frequency Assignment**

Name of applicant: County of Harris, Texas  
Mailing Address 406 Caroline St. 4<sup>th</sup> Floor  
City, State, Zip: Houston, Texas 77002

Authorized Signature \_\_\_\_\_

Greg Jurrens Senior Manager  
Harris County Radio Services

Is this a request for a new station?

**NO**

If for a new station, will it be trunked or conventional?

**TRUNKED**

Is this request for expansion of an existing system?

**NO**



If for expansion of an existing 700 MHz station, how many RF channels are there in the existing system?

**12**

How many channels are you requesting from the new 800-735 MHz band?

**6 frequencies.**

Please list your existing frequencies and explain their use.

**SEE ATTACHED COPY OF LICENSES FOR FREQUENCIES**

Will the use of the requested frequencies replace use of existing frequencies currently licensed?

**NO**

If use of the requested frequencies will replace the use of existing frequencies currently licensed, you may be required to “give back” some current frequencies. Please list the frequencies you would consider as “give backs” after your new channels are in operation.

Please give a month and year estimate for when you would expect the channels to become operational.                      Within 1 year of license being granted.

Please describe any actions that your entity has taken to fund the purchase of equipment for the requested channels. If no action has occurred, please indicate that no action has been accomplished and indicate how you expect your entity to fund the purchase of new equipment and what date you expect it to occur.                      Equipment has been purchased.

Please give the proposed latitude and longitude where the frequency transmitters will be located.

	Tomball		
Latitude	30-05-47.0 N		
Longitude	095-39-23.0 W		
	W Greens		
Latitude	29-57-17.3 N		
Longitude	095-32-02.6 W		
	DPS Houston		

Latitude	29-54-15.2 N		
Longitude	095-35-55.7 W		
	Hockley		
Latitude	30-02-01.2 N		
Longitude	095-51-55.9 W		

Keeping in mind the jurisdictional boundary restrictions, please give the approximate radius, in miles that you expect to cover, from the proposed transmitter site.

	Tomball		
	10		
	West Greens		
	10		
	DPS HOU		
	10		
	Hockley		
	10		

Please give the ground elevation at the site where the transmitting antenna will be located.

Site	Tomball		
Elevation	70.1 M		
Site	W Greens		
Elevation	35.3 M		
Site	DPS HOU		
Elevation	37 M		
Site	Hockley		
Elevation	69.8 M		

Please give the average ground elevation for the radius that you expect to cover.

	Tomball		
	70.1 m		
	W Greens		
	35.3 m		
	DPS HOU		
	37 m		
	Hockley		
	69.8 m		

Please give the height the transmitting antenna will be mounted above average elevation.

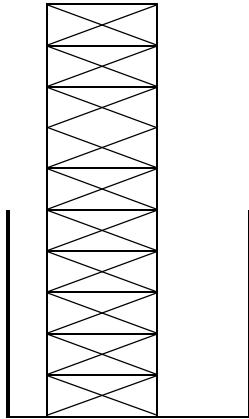
	Tomball		
	152.5 m		
	W Greens		
	91.4 m		
	DPS HOU		
	97 m		
	Hockley		
	115.8 m		

## APPENDIX 8

SYSTEM

Tomball  
ANTENNA

ERP	W
HEIGHT	152.5 M
MFG.	Sinclair
Model	SC-412
GAIN	11 dB
ORIENTATION	OMNI

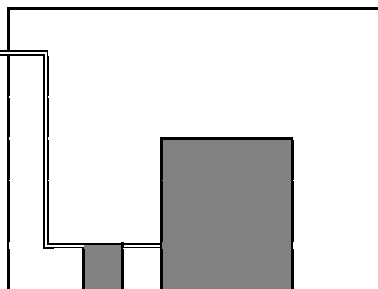
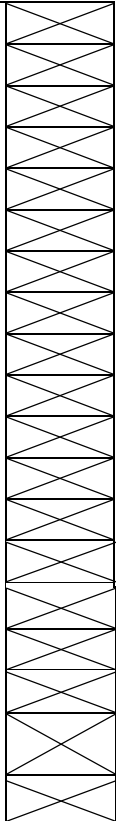


TRANSMISSION LINE

TYPE	1 1/4 "AVA
LENGTH	550 ft.
LOSS / 100ft	.9 dB
TOTAL LOSS	1.34 dB

TOWER INFORMATION

LATITUDE	30-05-47.0 N
LONGITUDE	095-39-23.0 W
GROUND ELEVATION	70.1 M
TOWER HEIGHT	152.5 M
COMBINER MODEL	Motorola

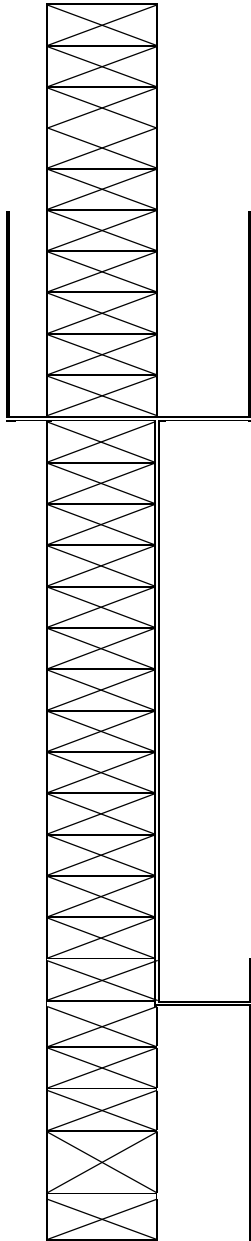


COMBINER LOSS	3.5 dB
JUMPER LOSS	1 dB
TRANSMITTER OUTPUT	100 W

SYSTEM

West  
Greens  
ANTENNA

ERP	W
HEIGHT	91.40 M
MFG.	Sinclair
Model	SC-412
GAIN	11 dB
ORIENTATION	OMNI



TRANSMISSION LINE

TYPE	1 1/4 " AVA
LENGTH	350 ft.
LOSS / 100ft	.9 dB
TOTAL LOSS	1.34 dB

TOWER INFORMATION

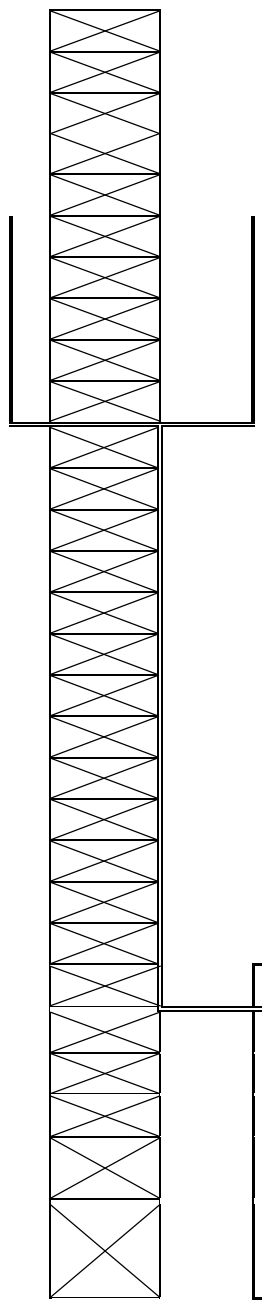
LATITUDE	29-57-17.3 N
LONGITUDE	095-32-02.6 W
GROUND ELEVATION	35.3 M
TOWER HEIGHT	91.4 M
COMBINER MODEL	Motorola
COMBINER LOSS	3.5 dB
JUMPER LOSS	1 dB
TRANSMITTER OUTPUT	100 W

DPS Houston

ANTENNA

ERP  
 HEIGHT  
 MFG.  
 Model  
 GAIN  
 ORIENTATION

W
91.40 M
Sinclair
SC-412
11 dB
OMNI



TRANSMISSION LINE

TYPE  
 LENGTH  
 LOSS / 100ft  
 TOTAL LOSS

1 1/4 "AVA
350 ft.
.9 dB
1.34 dB

TOWER INFORMATION

LATITUDE  
 LONGITUDE  
 GROUND ELEVATION  
 TOWER HEIGHT  
 COMBINER MODEL

29-54-15.2 N
095-35-55.7 W
37 M
91.4 M
Motorola

COMBINER LOSS

3.5 dB
--------

JUMPER LOSS

1 dB
------

TRANSMITTER  
 OUTPUT

100 W
-------

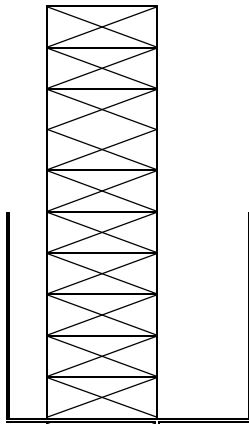
Hockley

ERP

W

ANTENNA

HEIGHT	115.8 M
MFG.	Sinclair
Model	SC-412
GAIN	11 dB
ORIENTATION	OMNI

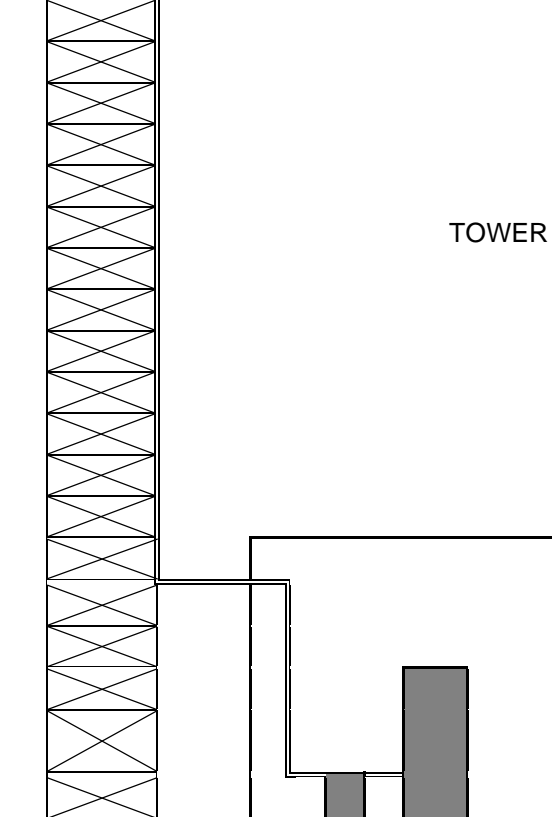


TRANSMISSION LINE

TYPE	1 1/4 " AVA
LENGTH	350 ft.
LOSS / 100ft	.9 dB
TOTAL LOSS	1.34 dB

TOWER INFORMATION

LATITUDE	30-51-55.9 N
LONGITUDE	095-51-55.9 W
GROUND ELEVATION	23 M
TOWER HEIGHT	115.8 M
COMBINER MODEL	Motorola



COMBINER LOSS	3.5 dB
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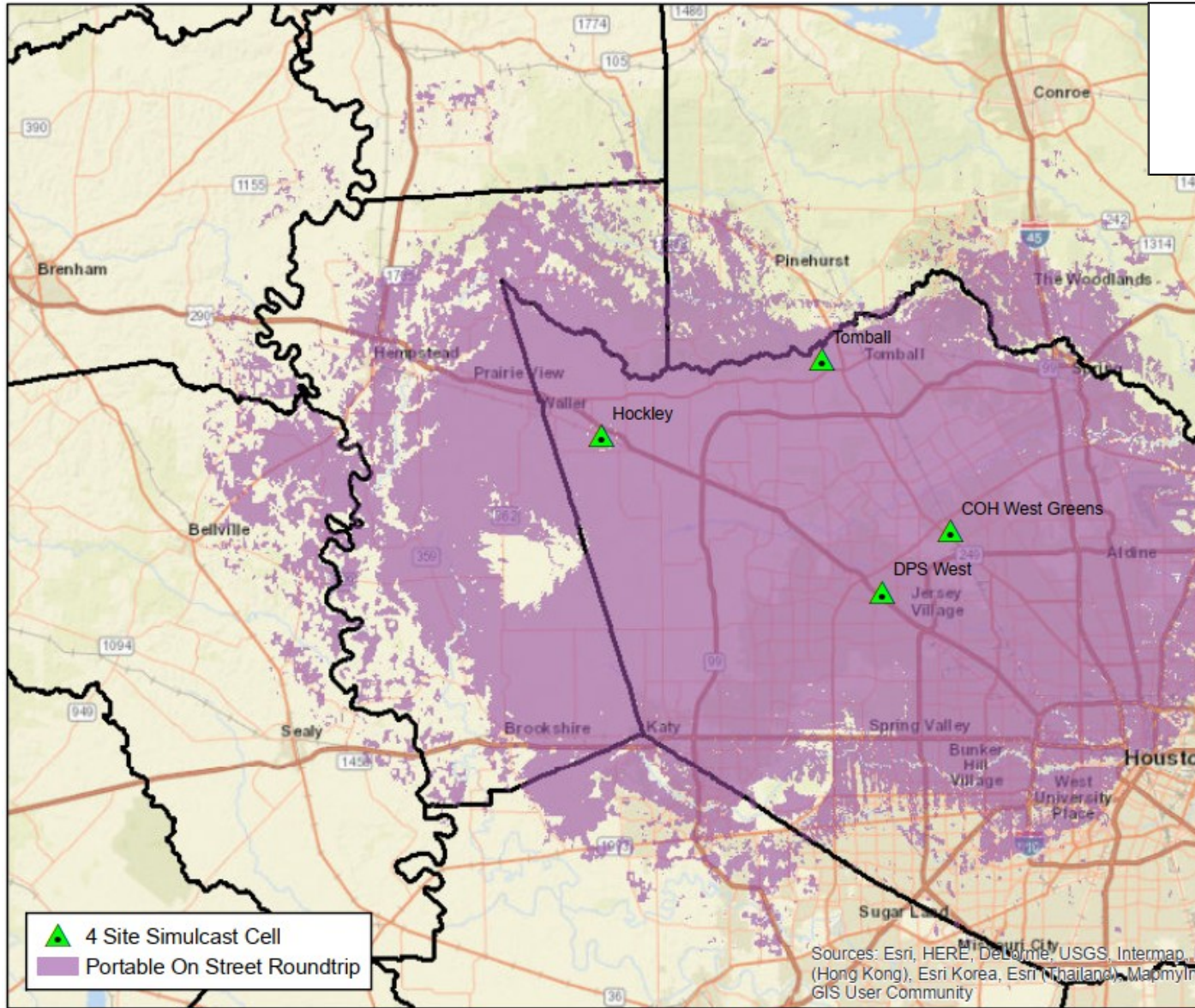
JUMPER LOSS	1 dB
-------------	------

TRANSMITTER OUTPUT	100 W
--------------------	-------



# Harris County, Tx

4-Site Astro P25 800 MHz TDMA 1-Cell Simulcast System  
Shaded Area Represents 95% Covered Area Reliability at DAQ 3.4



0 5 10 Miles  
1 in = 9 miles

Feb 13, 2020  
Hydra Stratus 2.7.1

Portable Configuration  
APX 7000, 2.5 W, 1/2 Wave Flex Whip  
Tx/Rx at Hip in Swivel Case using RSM  
This map is intended solely for the equipment configuration stated above.  
Coverage can vary significantly if different configurations are used.

**Tomball Antennas**  
TX: DS7C08PPVU2D @ 300'