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October 27, 2008

VIA ELECTRONIC FILING

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: Notice of Oral Ex Parte Communication, In the Matter of Implementation of the NET 911 Improvement Act of 2008, WC Docket No. 08-171 and the Commission's Wireless E911 Location Accuracy docket, 07-114

On October 24, 2008, Kim Robert Scovill, Sr, Director Government Affairs met with Renee Roland Crittendon, Legal Advisor to Commissioner Adelstein, on two topics: The Commissions Report and Order in 08-171, implementation of the NET911 Act of 2008, and the Commission's Wireless E911 Location Accuracy docket, 07-114. The substance of the discussion Regarding Docket 08-171 is contained in TCS's comments on file with the Commission, and the substance of the discussion regarding Docket 07-114 is contained in the attached presentation.

Pursuant to the commission's rules, 47 C.F.R. § 1.1206(b)(1), this letter is being filed electronically for inclusion in the record of the above-referenced proceeding.

Respectfully submitted,

James N. Moskowitz

Attachment

cc: Ms. Renee Roland Crittendon

E9-1-1 Location Accuracy

The Advantages of Horizontal Uncertainty for Compliance Measurement

October 2008

TCS TeleCommunication Systems

Enabling Convergent Technologies®

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Agenda

- Introduction
- Who is TCS?
- E911 Location Accuracy
- What is HUNC?
- TCS Proposal
- HUNC Reporting
- Advantages of HUNC
- Conclusion

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Introduction

- FCC Emphasis on Public Safety Communications / Homeland Security
- Compliance with FCC Rules
- Location Accuracy / Wireless Devices
- Interoperability
- “Any Device – Anytime”

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Who Is TCS?

- TeleCommunication Systems (TCS) NASDAQ: TSYS
  - HQ: Annapolis Global Data Centers Seattle & Phoenix
- E-911, messaging, commercial location, and government systems/services leader
- 140,000+ average 911 calls processed per day
- 10 years of wireless E-911 deployments and Mobile Positioning Center (MPC) hosting
  - PSAPs deployed: 5,800+ VoIP, 3,500+ wireless
  - Active public safety and E-911 standards participant

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Customers

at&t

verizon wireless

Sprint
Together with NEXTEL

T-Mobile

ALLTEL

metroPCS

U.S. Cellular

cricket

ride the light
Qwest

nTelos

Telefónica

vodafone

VONAGE
THE BROADBAND PHONE COMPANY

vivo

Hutchison 3G

Level(3)
COMMUNICATIONS

Over 50 Carrier Customers

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E911 Location Accuracy

- Two Issues in Proceeding
  - Standards for Accuracy Needs to Balance
    - Rural v. Urban Topology
    - Technology – CDMA v. GSM
    - Large v. Smaller Carriers
    - Exceptions v. Standard
  - Reporting
    - Accurate and Reliable
    - Relevant Geography
    - Convenient
    - Affordable
    - Meaningful to All Parties

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E911 Location Accuracy

- Goal of Proceeding
  - Why Discuss Geography?
  - Why Discuss Standards?
- Goal is “Actionable” Location Information that PSAPs Can Use and Rely On

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What Is HUNC?

- "HUNC" is Horizontal Uncertainty
- Horizontal Uncertainty is composed of two elements
  - Uncertainty – Accuracy of the Location Fix (X/Y Coordinates) Expressed in Feet: the Diameter of a Circle with the Fix Location at the Center
  - Confidence – Mathematical Probability that the Uncertainty is Accurate Expressed as a Percentage

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What Is HUNC?

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What Is HUNC?

- In combination, these measurements provide a probable location for the caller
- This information can be further analyzed for trends / statistical content
- That area can be plotted on a map, ground photograph, etc.

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TCS Proposal

- Goals
  - Reduce Time, Cost, and Effort of Accuracy Reporting
  - Provide Relevant Data to PSAPs and Carriers to Make E911 System Better
  - Potential to Increase Frequency of Reports
  - Alternative Testing Approach as opposed to Repetitious Universal Ground Truth Testing
  - Spend More Time and Resources on Real Problems

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TCS Proposal

- For Counties Having Minimum # of Cell Sites and Phase II Accuracy Deployed
  - Accept County-Level Reporting
  - Agree to Standard Confidence Level
  - Deliver Confidence and Uncertainty for All E911 Calls - Encourage PSAPs to Receive Data (data collection can occur in any case)
  - Review Reports after X-Months

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TCS Proposal

- Plan
  - Permit HUNC Calibration Period
  - Capture E911 HUNC Data
  - Analyze Against Accuracy Standard
  - Determine Underperforming Areas
  - Introduce Ground Truth Testing as Needed
  - Analyze Ground Testing/Correlate to HUNC
  - Permit Carrier to Select Non-Compliance Action Plan or Exception

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TCS Uncertainty Reporting

Statistical Reporting on All E911 Calls Allows for Quick Assessment of Areas Meeting and Not Meeting Accuracy Requirements (Example)

	Calls within 50M Accuracy	Calls within 150M Accuracy	Meets FCC mandate
PSAP 1 County 1	77%	96%	Yes
PSAP 2 County 2	62%	96%	Partial
PSAP 3 County 3	69%	96%	Yes
PSAP 4 County 4	88%	97%	Yes
PSAP 5 County 5	91%	93%	Yes
PSAP 6 County 6	55%	72%	No
PSAP 7 County 7	68%	98%	Yes
PSAP 8 County 8	73%	91%	Partial
PSAP 9 County 9	71%	97%	Yes
PSAP 10 County 10	82%	96%	Yes
PSAP 11 County 11	66%	96%	Yes
PSAP 12 County 12	79%	97%	Yes
PSAP 13 County 13	82%	99%	Yes

Assign Resources Only in Areas Not Meeting Accuracy Mandate

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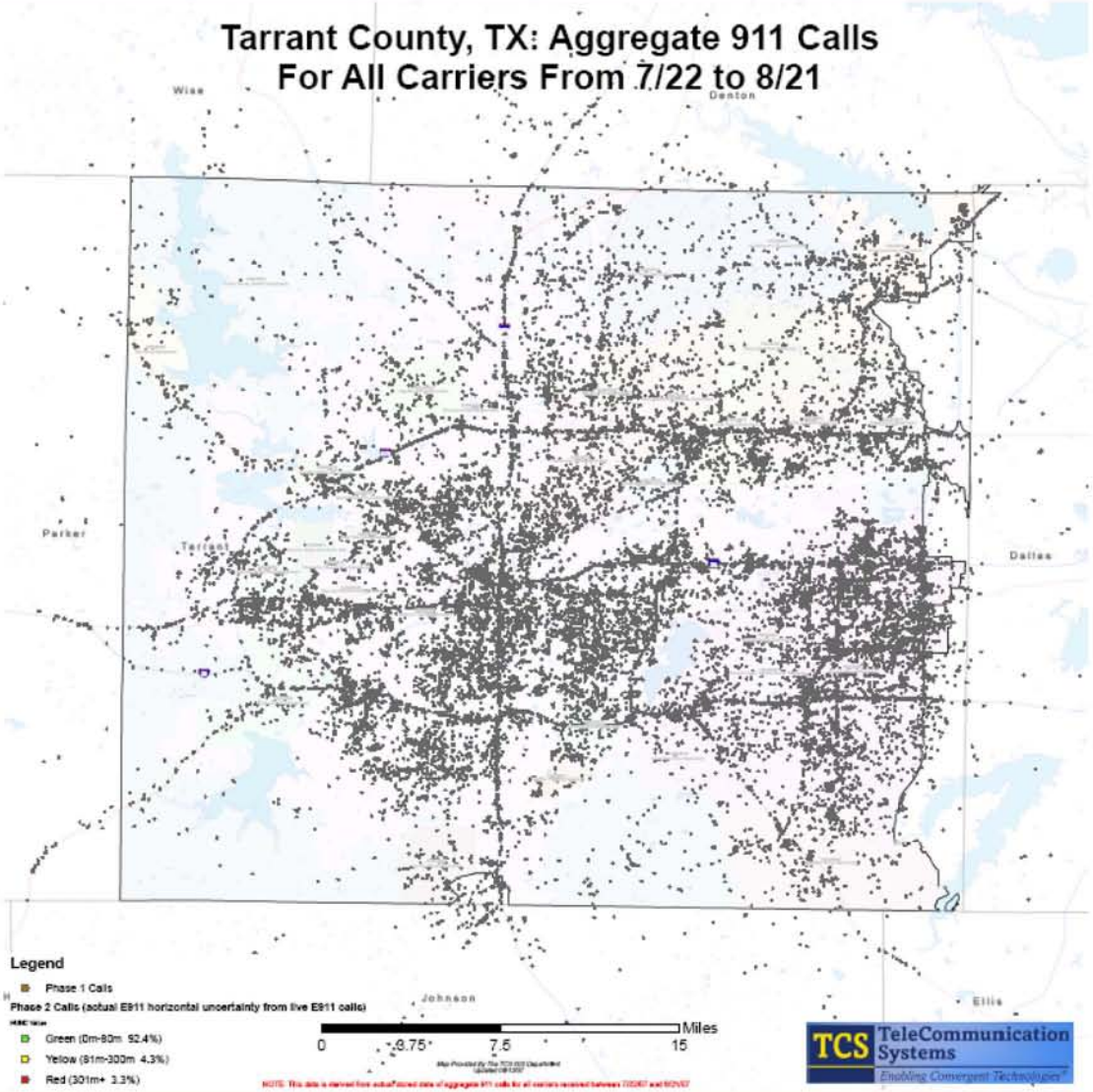
Actual E911 Call Data



- TCS can statistically analyze and map all E911 calls
- Uncertainty can be quickly analyzed for all geographic areas
- Focus efforts on the areas showing high horizontal uncertainty

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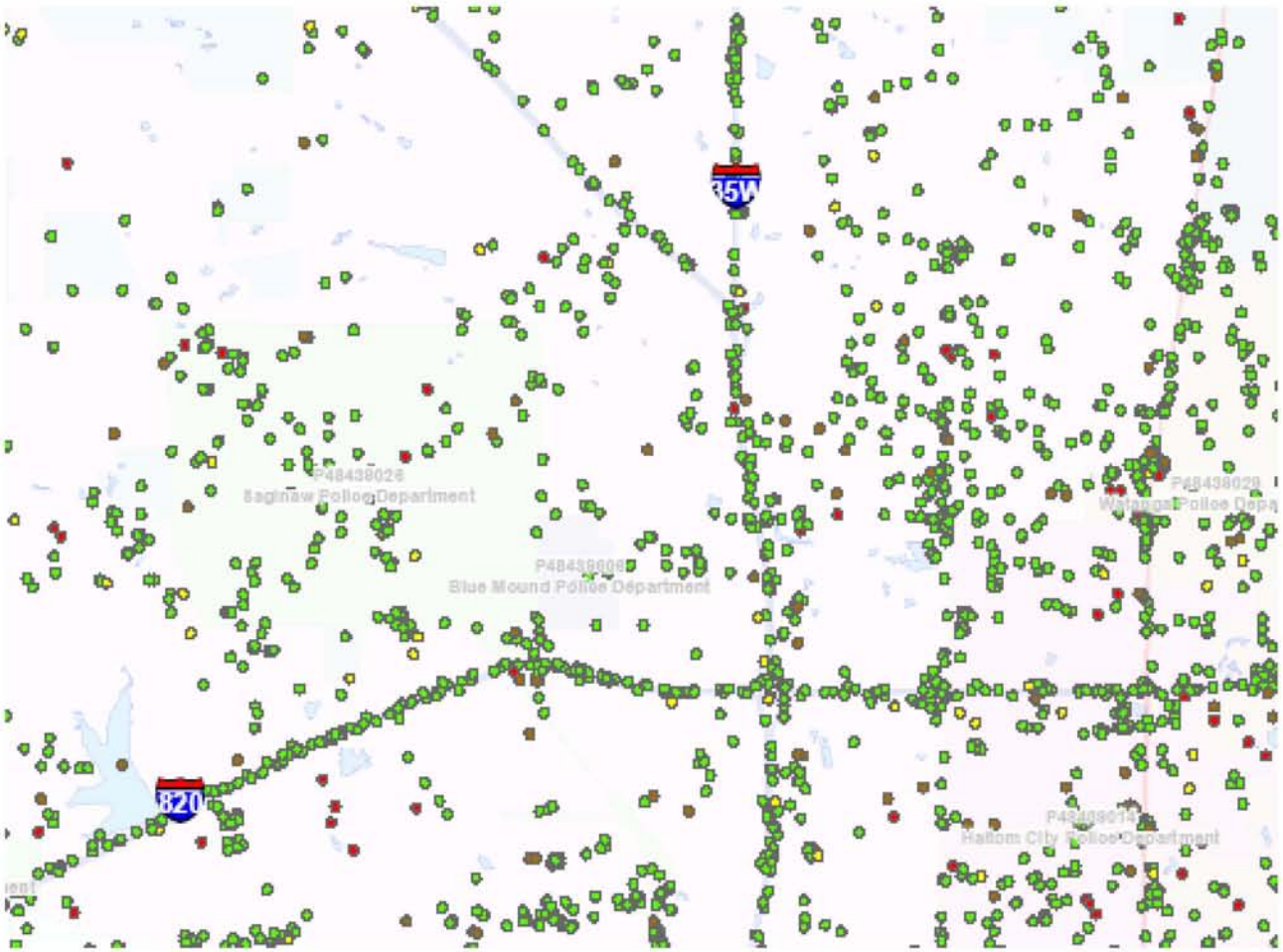
Actual E911 Call Data (Close-Up) Tarrant Co., TX

Phase 2 Calls (actual E911 horizontal uncertainty from live E911 calls)



- Green (0m-80m 92.4%)
- Yellow (81m-300m 4.3%)
- Red (301m+ 3.3%)

- **Green Dots (92%) indicate PDE reported uncertainties <= 80M**
- **Plotted calls clearly show highway pattern – meaning position fix of calls are within the width of a highway**
- **Red Dots show areas where network/terrain problems may exist**

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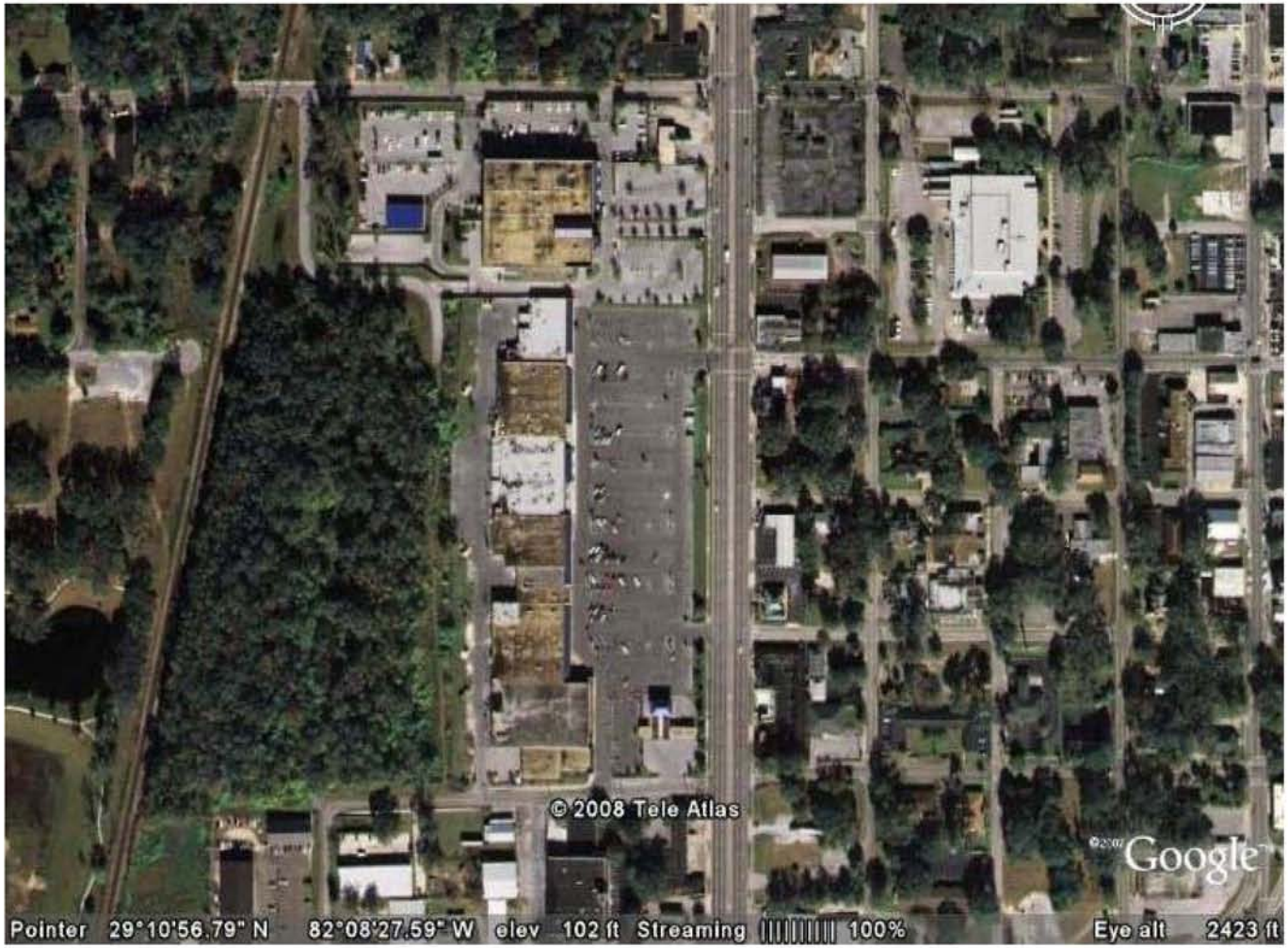
Analytical Abilities Using Overlaid Maps



- GIS tools/data drive analysis
- Ability to understand nature HUNC of calls
- Available Over Time

Possibly In-building call

Possibly call in forest

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Advantages of HUNC

- 100% of Data is Relevant (only E911 calls)
- 100% of Calls are Captured
- Leads to Faster Dispatch
- Value When Caller Cannot Detail Location
- Flexible – Accommodates New Technology
- Per-Call Actionable Information

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Advantages of HUNC

- "Win" for Carriers
  - Standards are Relevant and Reporting is Automatic
  - Leverage Existing Investment and Technology
  - Expensive Ground Truth Testing is Focused If and When Needed
  - Network Adjustments are Focused on Where They are Truly Needed

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Advantages of HUNC

- "Win" for Public Service and FCC
  - Standards are Relevant and Reporting is Automatic
  - Compliance Reporting in All Areas Quickly
  - New / Additional Location Information
  - Faster Dispatch with Confidence
  - Alignment of Incentives for Carriers to Maximize Accuracy
  - PSAP Assets are Focused on Where They are Truly Needed

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Advantages of HUNC

- “Win” for E911 Callers
  - Location Information to Assist When Caller Does Not Know / Confused About Location
  - Faster Dispatch with Confidence

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Conclusion

- HUNC Represents a Classic “Win-Win” for All Parties
- Can be Implemented In Reasonable Timeframe and is Not Dependent on PSAP
- Technology Neutral
- Flexible
- Aligns All Parties to a Common Goal

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Thank you

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