

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of)
)
) CC Docket No. 94-102
Revisions of the Commission's Rules)
To Ensure Compatibility with) DA 98-2631
Enhanced 911 Emergency Calling)
Systems)

To: Chief, Wireless Telecommunications Bureau

REPLY TO COMMENTS AND
REQUESTS FOR WAIVER OF SECTION 20.18(e)

KSI Inc. (KSI), by its attorneys, respectfully submits the following Reply to the comments and requests for waiver of Section 20.18(e) of the Commission's Rules filed February 4, 1999 in the above-captioned proceeding.¹ In response to the Wireless Telecommunications Bureau's (Bureau) December 24, 1998 *Public Notice* which established guidelines for waiving the Commission's Phase II Automatic Location Identification (ALI) requirements, numerous wireless carriers filed comments and petitions for waivers.² Contrary to the Bureau's request for detailed information to support the grant of waivers, the filings received fail to provide any substantive basis to warrant a delay in the implementation of the Commission's Phase II ALI rules. As set forth fully below, KSI therefore believes that granting waivers of the Commission's Phase II requirements contravenes the public interest and lacks record support.

¹ Copies of this Response will be served on all parties filing Petitions for Waiver and Comments in the above-captioned proceeding *via* First Class Mail.

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I. Introduction and Summary

FCC Chairman Kennard, speaking last week before industry representatives at CTIA in New Orleans, stated that the deadline for launching Phase II E911 location is October 2001, and explained that he did not believe that “we should wait until the next millennium to bring a service to Americans that they need today.”³ The Chairman challenged the industry not just to meet the implementation deadline, but more importantly to “beat it.”⁴ Similarly, in recent testimony before the United States House of Representatives, Thomas Sugrue, Chief of the Commission’s Wireless Telecommunications Bureau, expressed an intent “to remain active in taking the steps necessary to ensure that the goals of the Commission’s E911 rulemaking are realized.”⁵

For almost thirty years, KSI and its key personnel have been recognized as experts and pioneers in the areas of design, development, and integration of systems with capabilities for the detection, localization, and tracking of radio frequency, acoustic, and seismic signal sources. Over a decade ago, KSI recognized the public safety benefits of using location techniques in emergency situations involving wireless communications. Since that time, KSI has perfected location capabilities capable of exceeding the Commission’s Phase II requirements for delivering Automatic Location Identification (ALI).

² “Wireless Telecommunications Bureau Outlines Guidelines for Wireless E911 Rule Waivers For Handset Based Approaches To Phase II Automatic Location Identification Requirements,” CC Docket No. 94-102, *Public Notice*, DA 98-2631(December 24, 1998).

³ See Chairman William E. Kennard, “Crossing into the Wireless Century,” Speech at CTIA convention , New Orleans, Louisiana, February 9, 1999.

⁴ *Id.*

⁵ See Statement of Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, Submitted to Subcommittee on Telecommunications, Trade and Consumer Protection, Committee on Commerce, United States House of Representatives, Hearing on Wireless E911 and Wireless Privacy Enhancement Issues, February 3, 1999.

Specifically, KSI has developed its patented TeleSentinel location system using angle of arrival to determine the location from which the radio frequency (RF) transmissions of a wireless communication originate. Through a sophisticated processing of data concerning the angle of arrival of the RF energy of the 911 communication, KSI's TeleSentinel system provides ALI with a level of accuracy that meets the Commission's Phase II requirements.

In the past year, KSI has successfully field tested its second generation digital wireless telephone location system. This AMPS-TDMA system locates both analog (AMPS) and digital (TDMA) wireless phones. The development of this location technology can provide both AMPS and TDMA-based carriers with the digital capability necessary to comply with the Commission's Phase II ALI rules. KSI has exhibited TeleSentinel at numerous industry meetings, and has conducted live demonstrations of TeleSentinel's capabilities at a number of telecommunications trade shows. This past week, KSI conducted live demonstrations of TeleSentinel's TDMA phone tracking at CTIA's annual conference in New Orleans.

Because the Commission sought in this Docket to ensure that efforts to deploy Phase II ALI remained "technologically and competitively neutral," it adopted general performance criteria rather than extensive technical standards for the provision of Phase II ALI.⁶ KSI fully supported the Commission's decisions in this regard, and continues to believe that all location technologies that can satisfy the acknowledged needs of the public safety community should be allowed to compete in the marketplace. KSI believes that through robust competition in the marketplace, wireless carriers may come to rely upon more than one location technology to provide E911 capabilities. Such a result, however, should derive from the marketplace rather

than new rules cloaked under the shroud of industry wide waivers.

As set forth below and as stated in the February 4, 1998 Comments of the Phase II Working Group -- of which it is a member -- KSI believes that the *Public Notice*, inviting waivers of Section 20.18(e), stands flatly in conflict with the Commission's commitment to the provision of Phase II E911 location information for all wireless callers. Based on the record compiled in this proceeding, it is clear that waivers of the Phase II requirements are unnecessary and contrary to the public interest. KSI therefore urges the Commission to reaffirm its commitment to the Phase II implementation deadline, and to definitively state that compliance with the Commission's Rules requires a Phase II ALI solution that covers the existing embedded base of over 68 million wireless handsets.⁷

II. Discussion

A. The Record Does Not Support Waivers of Section 20.18(e)

In response to the *Public Notice*, the Bureau received nineteen requests for waivers of the Phase II requirements and eight sets of comments. Notably, only a few of the carriers requesting waivers even attempted to provide the information requested by the Bureau in the *Public Notice*. Indeed, several of the carriers themselves conceded that waiver requests were, at best,

⁶ "In Re Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems," CC Docket 94-102, *Memorandum Opinion and Order*, 12 FCC Rcd 22665, 22724-25 (1997) (*E911 Reconsideration Order*).

⁷ The FCC, indeed, made the decision not to grandfather existing handsets from the Phase II requirements in its *Report & Order* by disregarding the requests of certain commenters for grandfathering. *See generally*, "In Re Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems," CC Docket 94-102, *First Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 18676 (1996) (R&O). In its *E911 Reconsideration Order*, 12 FCC Rcd. 22665, the FCC noted that it had received an *Ex Parte* request from Zoltar, (*see Zoltar Further Reply Comments at 3-4*), that it grandfather existing handsets from the Phase II requirement. *E911 Reconsideration Order*, 12 FCC Rcd. at 22725, ¶124 n.319. The Commission noted that it had not compiled any record on grandfathering handsets on reconsideration of the R&O because no party had asked for formal reconsideration of the R&O on this issue. *Id.* In a petition for further clarification of the *E911 Reconsideration Order*, among other things, CTIA suggested that the FCC clarify its rules pertaining to handset technologies and referenced that one possible approach would be the grandfathering of handsets. *Petition for Reconsideration and Clarification of the Cellular Telecommunications Industry Association*, CC Docket 94-102 (February 17, 1998). KSI opposed this request in its Comments. CTIA's petition is pending before the Commission.

premature.⁸ Yet, perhaps encouraged by the Public Notice, many of these carriers filed petitions or comments simply to preserve the option to do so at a later date, or to revisit issues already settled by the Commission.⁹ Despite filing requests for waivers, many carriers noted that it is difficult to assess whether they can comply with an implementation date that is thirty two months away.¹⁰ Additionally, several petitioners and commenters acknowledged that “while [handset solution] vendors have made various representations regarding the abilities of their products, no prototypes are currently available for testing, much less information regarding full commercial implementation.”¹¹ Thus, the record compiled in response to the *Public Notice* falls far short of the standard necessary to allow a waiver of the Commission’s Rules.

To support requests for waivers, the Bureau asked carriers to supply information regarding: the accuracy and reliability of handset solutions, including field test information; timetables and milestones regarding the deployment projections for ALI capable handsets; steps carriers would take to minimize the problems associated with non-ALI capable handsets, including the costs associated with replacing existing handsets; and, the steps carriers plan to

⁸ See e.g., Southern Company Request for Leave to File Request for Waiver at a Later Date; GTE Service Corporation Comments; Tritel Inc. Comments; AT&T Wireless Services Inc. Comments; and, Cincinnati Bell Wireless Comments.

⁹ See e.g., TeleCorp PCS, Inc. Request for Waiver at 1 (filing to preserve options); Nextel Communications, Inc. at 4 (filing “to reserve right to seek future waiver of Section 20.18(e) if and when such waiver is necessary”); Ameritech Request for Waiver at 1-2; Chariton Valley Wireless Services Request for Waiver at 2-3 (raising issues of difficulties for rural carriers); New Mexico RSA 6-III Partnership Request for Waiver at 2-3 (also raising issues regarding rural carrier implementation of Phase II ALI); Sprint Spectrum L.P. Waiver Request at 6 (raising issues of cost recovery).

¹⁰ See e.g., Request of Southern Company for Leave to File Request for Waiver at a Later Date at 4; New Mexico RSA 6-III Partnership Request for Waiver at 2; Peoples Cellular Request for Waiver at 2; Brazos Cellular Request for Waiver at 2; Arctic Slope Telecommunications and Cellular, Inc. Request for Waiver at 2.

¹¹ Sprint Spectrum L.P. Waiver Request at 4; see e.g., AT&T Wireless Comments at 2; US West Wireless Petition for Waiver at 5; PrimeCo Personal Communications L.P. Petition for Waiver at 6 (“these initial tests were with specially designed handsets”); United States Cellular Corporation Contingent Request for Waiver at 7; Arctic Slope Telecommunications and Cellular Inc. Request for Waiver at 3.

take to address roaming situations.¹² The Request for Waivers the Bureau received fall far short of justifying the grant of waivers of the Phase II requirements. First, some carriers believe that the provision of ALI through handset-based solutions can only be accomplished by grandfathering existing equipment—a decision that would leave millions of wireless users effectively uncovered by Phase II E911 service even if vendors ultimately overcome the existing technical hurdles to manufacturing a reliable GPS-integrated handset.¹³ Second, despite the specific request of the Public Notice, the carriers requesting waivers have no recommendations to solve the roaming problem presented by a handset-based solution.¹⁴ Finally, no new information was added to the overall record in the Docket. Instead, carriers requesting waivers relied upon test data and information made in previous *ex parte* presentations in the record. To date, there is no new substantive data to warrant a departure from the Commission's implementation date of October 2001. If anything, the Petitions establish that handset solutions are not currently commercially available, and may not be for years to come.

1. The Commission Cannot Allow An E911 Phase II ALI Solution Which Does Not Include Existing Wireless Equipment

Over 68 million wireless phones are in use in the United States today, many of which have been marketed and purchased for the sole purpose of personal safety. In the next two years, by all projections of wireless use, this number will continue to rise. Any E911 Phase II requirement that does not apply to existing handsets will effectively deprive protection for those

¹² *Public Notice* at 4.

¹³ *See generally*, Nextel Petition at 3; Arctic Slope Telecommunications and Cellular Inc. Petition at 3; Advantage Cellular Systems, Inc. Petition at 3; Peoples Cellular Request for Waiver at 3; Aerial Communications Petition at 1-2; CenturyTel Wireless, Inc. Request for Waiver at 2; PrimeCo Personal Communications Petition at 1; PowerTel, Inc. Petition at 2; AirTouch Communications, Inc. Petition at 13; US West Petition at 1.

¹⁴ *See e.g.*, Inland Cellular Telephone Company Petition for Waiver at 3; Upstate Cellular Network Petition for Waiver at 3; Advantage Cellular Systems, Inc. Request for Waiver at 3; United States Cellular Corporation Contingent Request for Waiver at 4 (“USCC does not believe that a handset/satellite based ALI system will be able to ‘minimize’ the problem for non-ALI capable roamer handsets.”)

consumers that specifically sought to reap public safety benefits. The suggestions by certain of the carriers requesting waivers and one *ex parte* commenter earlier in the Docket that the churn rate in handsets and subscribers will minimize the difficulties resulting from handset-based waivers or even the grandfathering of existing handsets is simply unreliable speculation.¹⁵ Indeed, this speculation on churn assumes, among other things, that an effective and marketable GPS integrated handset solution has been developed and deployed and that this solution – whatever it is and whenever it is developed – is actually preferred by an overwhelming number of subscribers purchasing new handsets .

Reliance on handset-based solutions to satisfy the critical public safety need addressed in CC Docket 94-102 therefore will in effect require that the FCC dictate to wireless subscribers the form, functions and features of the handsets that they use. This, in turn, no doubt will limit the ability of handset manufacturers to develop new models of handsets and perhaps to offer different features than the ones chosen by the Commission. Such speculation on the future of the handset markets by the Commission is undesirable and is an inadequate basis for fulfilling the real and existing needs of the public safety community.

Certain carriers in fact have acknowledged that such handsets may be in sharp contrast with consumer preferences for smaller, less costly handsets.¹⁶ As USCC noted in its Petition, “[h]andset ALI devices will also tend to make wireless telephones heavier than customers may wish, as well as more unwieldy, and will be a ‘drain’ on cellular batteries, thus reducing ‘talk

¹⁵ See e.g., AirTouch Communications Petition at 11-12; PowerTel, Inc. Petition at 6-7; PrimeCo Personal Communications, L.P. Petition at 7; US WEST Wireless, L.L.C. Petition at 9-10; SnapTrack *Ex Parte*, October 30, 1998 (alleging that 95% of handsets will be ALI-capable by 2004).

¹⁶ Tritel Comments at 5.

time' between charges.”¹⁷ Thus, the employment of a handset-based solution presents a market paradox that the Commission never intended.

The *Public Notice* has sent a confusing signal to the marketplace regarding the need for technologies that can locate non-GPS integrated handsets. Since over 68 million of these units are in commercial service today – as opposed to no GPS-enabled handsets – many of which undoubtedly will be in service for years unless carriers actually require their return and ensure that they are destroyed. No carrier has made such a proposal because doing so would reflect an enormous waste of resources. Thus, the need for location solutions that address these existing handsets is clear and compelling.

KSI is concerned, however, that the confusing and mixed message sent to the marketplace by the *Public Notice* will delay the ability of companies developing network-based solutions, like KSI, to address the needs of the marketplace in time to meet the deadline acknowledged only last week by the Chairman as critical to this nation's public safety. Accordingly, KSI urges that the Commission swiftly reconfirm its decision in the R&O, reinforced by the MO&O, that it will not grandfather existing handsets from the Phase II location requirements.

2. None of the Waivers Provide Acceptable Plans to Address the Problem of Roaming

Not a single carrier requesting a Phase II waiver was able to state with specificity how it would provide Phase II ALI for a wireless subscriber without a location enabled handset who roams to a system where a carrier has employed a handset-based location solution. Several carriers attempted to minimize the roaming problem by noting that a wireless subscriber who did not have a location enabled handset would still have Phase I ALI information accompanying a

¹⁷ USCC Petition at 4.

call.¹⁸ Other carriers did not even attempt to address the roaming issue but instead argued that industry rather than individual licensees should be tasked with solving the problem.¹⁹ The United States Cellular Corporation (USCC) went a step further and admitted that it does not believe that a handset-based approach will be able to minimize the roaming problem for non-ALI capable roamer handsets.²⁰ Additionally, USCC stated that the Commission should acknowledge that “[i]f the equipment is not compatible, ALI simply won’t work.”²¹ Accordingly, it is clear that the Requests for Waiver did not provide a record with information sufficient to inform the Commission of the steps carriers would take to address the roaming situation.

In sum, as several carriers recognized that, “[b]ecause no nationally deployable, fully tested, cost effective handset-based technology currently exists,”²² carriers cannot provide the detailed information the Bureau requested to warrant a waiver of the Commission’s Rules. It is, therefore, not surprising that the record received in response to the *Public Notice* falls far short of what the Bureau requested, and even shorter of what the public interest requires.

B. The Grant of Waivers of Section 20.18(e) is Contrary to the Public Interest

In their jointly filed comments, the Public Safety Associations noted with concern that, between the lines of what the Bureau’s *Public Notice* stated, they “detected a tentative conclusion that universality of access and use – in both geographic and economic terms – can be compromised or given up in exchange for promises of earlier delivery of improved accuracy and

¹⁸ See e.g., AirTouch Communications Petition at 14.

¹⁹ See e.g., Inland Cellular Telephone Company’s Petition at 3; Upstate Cellular Network Petition at 3; Advantage Cellular Systems, Inc. at 3 (“The issue of roamer compatibility with handset based systems has also yet to be satisfactorily addressed by equipment manufacturers.”)

²⁰ United States Cellular Corporation Contingent Request for Waiver at 4.

²¹ *Id.*

²² See e.g., AT&T Wireless Comments at 2.

reliability.”²³ There is, however, in the record established by the Phase II waiver requests no basis to believe that GPS-integrated handsets, or other handset solutions, in fact will offer improved accuracy over that available from network-based systems. Indeed, the most frequently cited test of a putative handset-based solution offered as support by carriers requesting waivers is the SnapTrack test of a GPS device in Denver, Colorado.²⁴ This configuration consisted of a stand-alone assisted GPS receiver working with its own antenna and its own infrastructure support. This device itself exceeded the size of currently vended wireless phones and did not address integrated antenna performance issues. This test thus provides no basis at all for extrapolating the possible levels of accuracy available from GPS-integrated handsets.

In any event, KSI believes that a trade off of tightened accuracy requirements with greatly diminished universality of service-- even if technically possible – would not serve the public interest. The Commission itself has recognized as much by decreeing that all users of wireless telephones should be provided with wireless E911 services – even those that have not subscribed for service. Petitioners have confirmed for the Commission that handset-based solutions are not commercially available today, and will not be for several years, if ever. Since network based solutions are currently available, it is illogical to waive the Commission’s Rules to delay Phase II benefits to consumers solely on the promise of a technology that in some ways may be more desirable, but which may never commercially materialize.

Certain commenters and petitioners evidence a misunderstanding of the capabilities of network-based location solutions. For instance, the carriers serving rural areas suggest that radio-triangulation network location systems do not make sense for their operations, believing

²³ Public Safety Associations’ Comments at 4.

²⁴ See generally, Ameritech’s Request for Waiver at Exhibit A; US WEST Wireless, L.L.C. Petition for Waiver at 5; PrimeCo Personal Communications, L.P. Petition for Waiver at 6; Powertel, Inc. Petition for Waiver at Exhibit A; AirTouch Communications Petition for Waiver at 7.

that at least three sites are required for reliable locations.²⁵ To the contrary, KSI has repeatedly documented with TeleSentinel that reliable and accurate locations are routinely available with only two receiving antenna sites. KSI, moreover, is developing a single site location capability that is well suited to provide locations in those rural environments with antenna sites aligned along highways.

Other carriers erroneously state that the provision of ALI for TDMA phones is unavailable.²⁶ As noted above, KSI's AMPS/ADMA TeleSentinel system indeed provides this capability. Attached hereto as Exhibit A, is a map providing data from the successful location of TDMA phones within the Phase II accuracy requirements. The large red circle on the map outlines the Commission's Phase II 125 meter parameter, and the small yellow circles indicate the locations of the caller as provided by TeleSentinel. KSI's TDMA capabilities are also equally applicable with SMR signals in the iDEN format. KSI is currently developing CDMA and GSM signal location adaptations of its technologies.

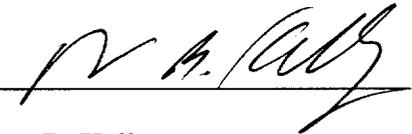
²⁵ See *e.g.*, Chariton Valley Wireless Services Request for Waiver at 2; New Mexico RSA 6-III Partnership Request for Waiver at 2; Arctic Slope Telecommunications and Cellular Inc. Request for Waiver at 2; Brazos Cellular Communications Ltd. Request for Waiver at 2.

²⁶ See *e.g.*, Tritel Comments at 3-4.

III. Conclusion

Throughout the course of this Docket, the Commission has emphasized the importance of deploying Phase II E-911 by October 1, 2001. The grant of waivers of this deadline and the Phase II requirements squarely conflicts with important Commission and public safety policy objectives. In light of the fact that the Commission's Phase II requirements are currently attainable by commercially developed and tested technologies, the grant of waivers is unnecessary and against the public interest.

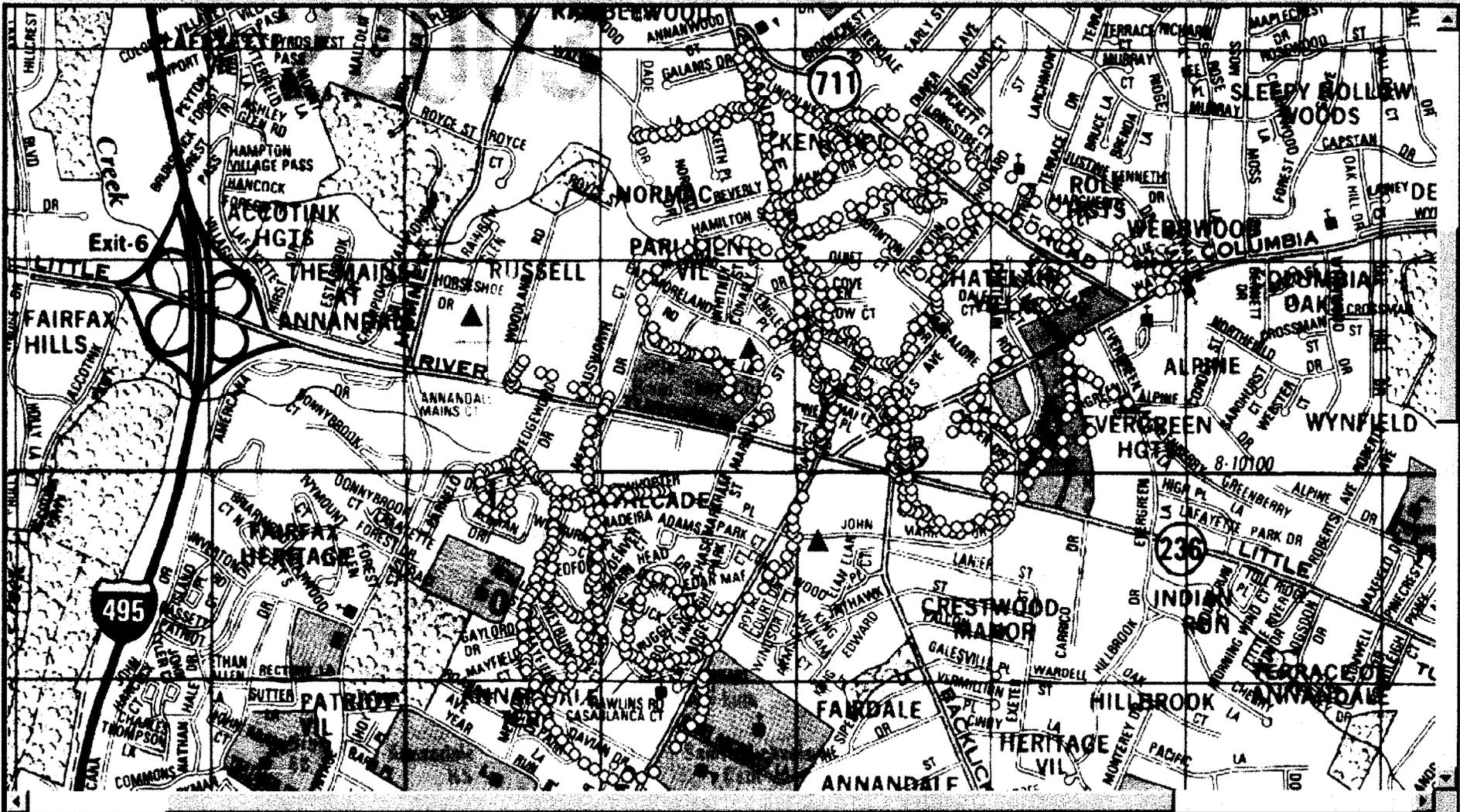
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