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Celia Nogales
Director - Federal Relations

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July 14, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Magalie Roman Salas, Secretary
Federal Communications Commission
The Portals
445 12th Street, SW
Washington, DC 20554

Re: **Ex Parte Presentation**
CC Docket 96-45 and CC Docket 97-160

Dear Ms. Salas:

On Tuesday, July 13, 1999, Bill Palmer, Bill Fitzsimmons and Jia Cheng Huang of LECG and I met with Katie King, Jeff Prisbrey, Bill Sharkey, Richard Smith, Bob Loube, Bryan Clopton, Gene Fullano, and Dick Kwiatkowski of the Common Carrier Bureau to discuss the FCC cost model. The attached material formed the basis of LECG's discussion

Sincerely,

Attachment

- cc: K. King (w/o attach.)
J. Prisbrey (w/o attach.)
B. Sharkey (w/o attach.)
R. Smith (w/o attach.)
B. Loube (w/o attach.)
B. Clopton (w/o attach.)
G. Fullano (w/o attach.)
D. Kwiatkowski (w/o attach.)

No. of Copies rec'd 074
List ABCDE

Preliminary HCPM Review

**Presented to
FCC Common Carrier Bureau
Accounting Policy Division**

July 13, 1999

LECG
ECONOMICS • FINANCE

Agenda

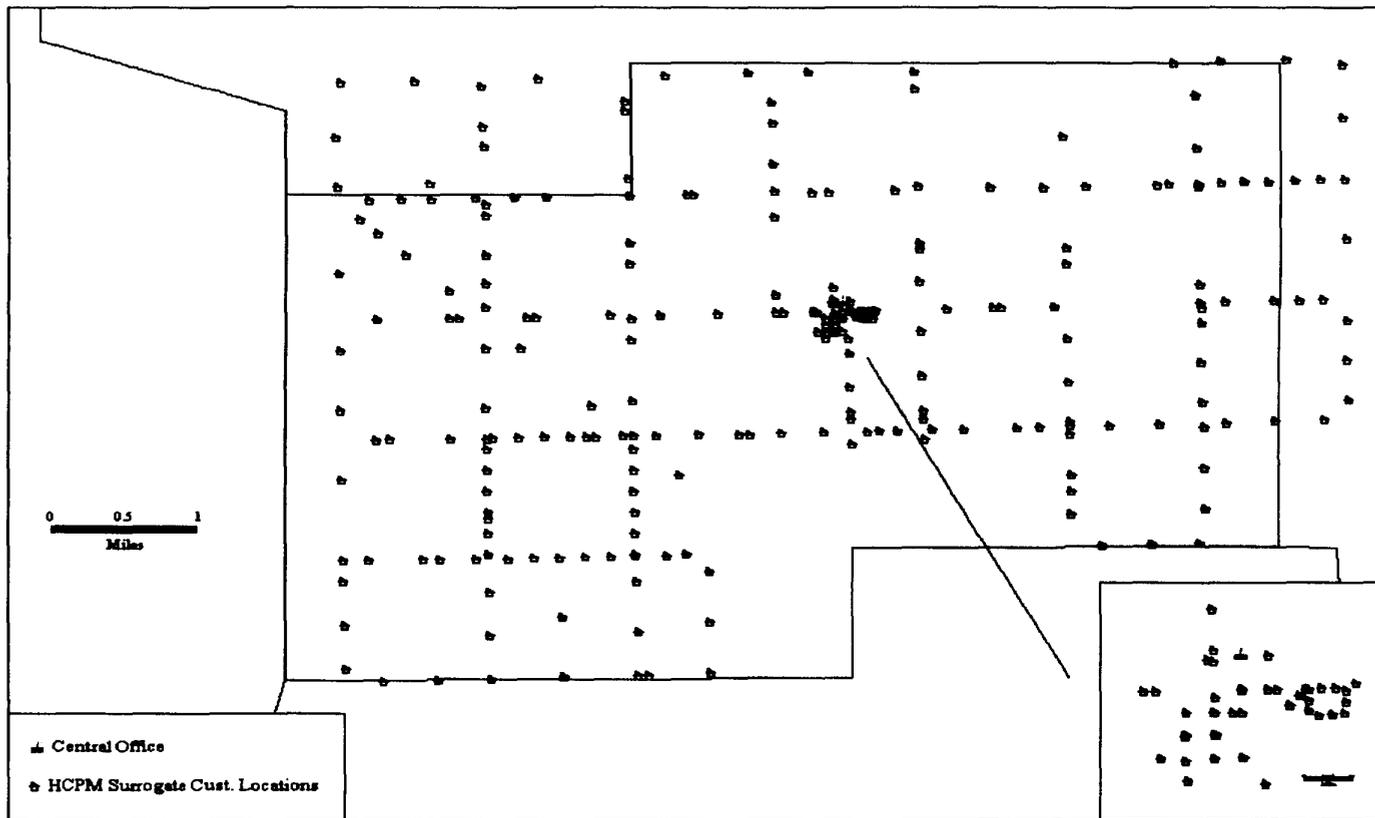
- Customer Locations and Wire Center Boundaries
- Clustering and Density Zone Calculations
- Line Counts
- Inputs
 - Investment
 - Expense
- User Needs
- Commission Requirements
- Areas of Further Analysis

Customer Locations and Wire Center Boundaries

- Comparison of surrogate customer locations and actual wire center boundaries
- Comparison of actual and surrogate locations

Owendale, Michigan Surrogate and Actual Locations

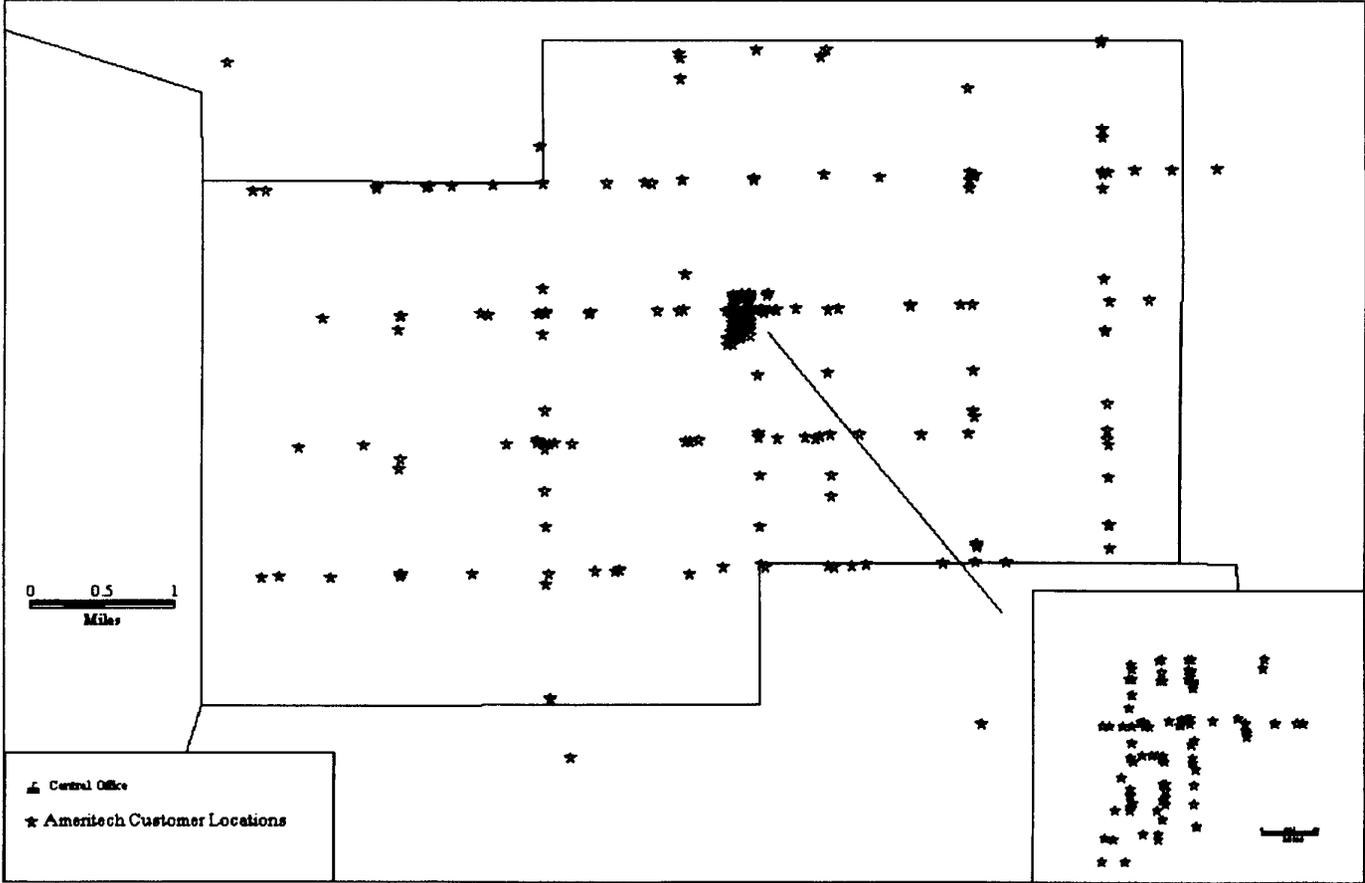
Owendale (OWNDMIMN) : 265 Lines



July 13, 1999

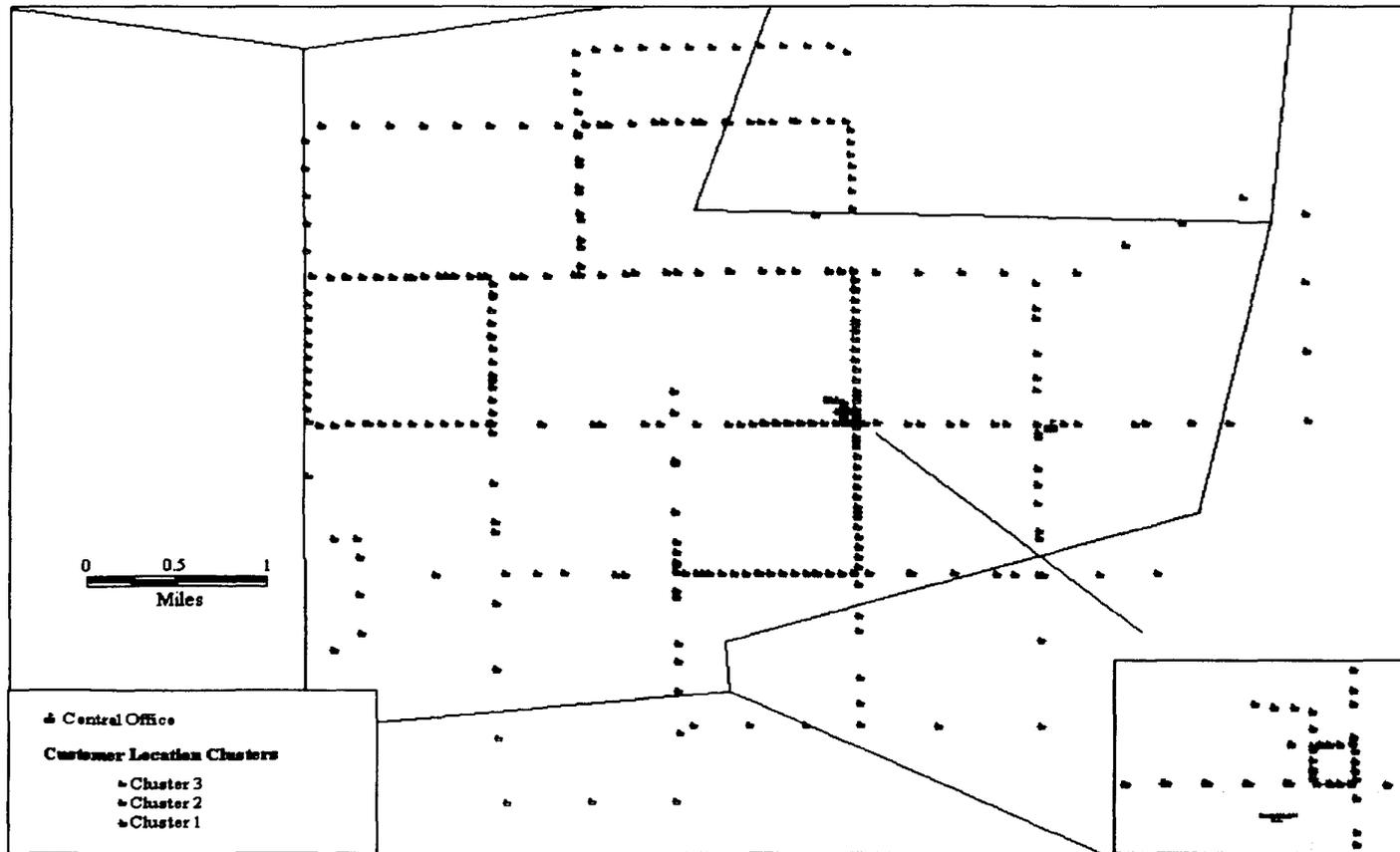
Owendale, Michigan Surrogate and Actual Locations

Owendale (OWNDMIMN) : 265 Lines



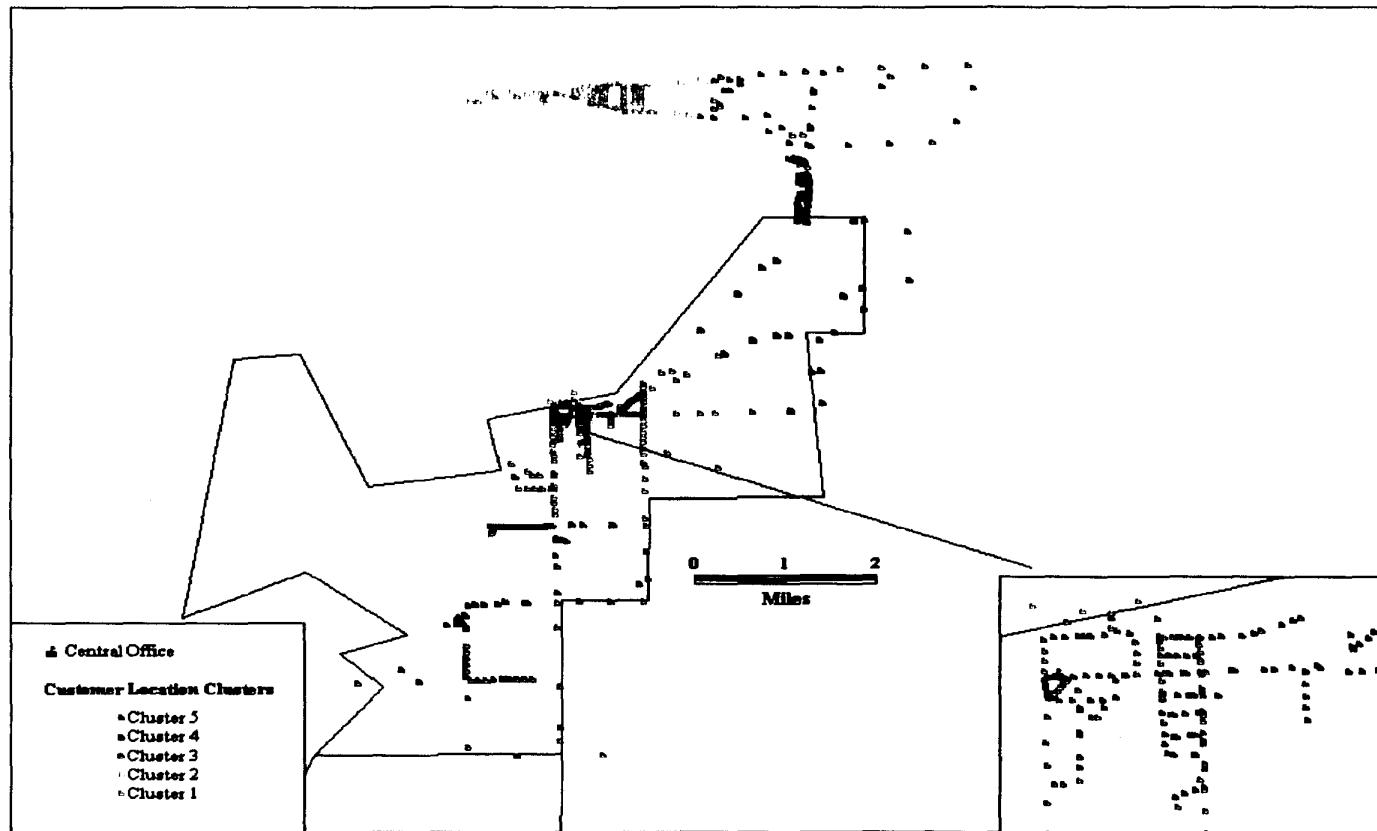
Fulton, Michigan Surrogate Locations

Fulton (FLTNMIMN): 367 Lines

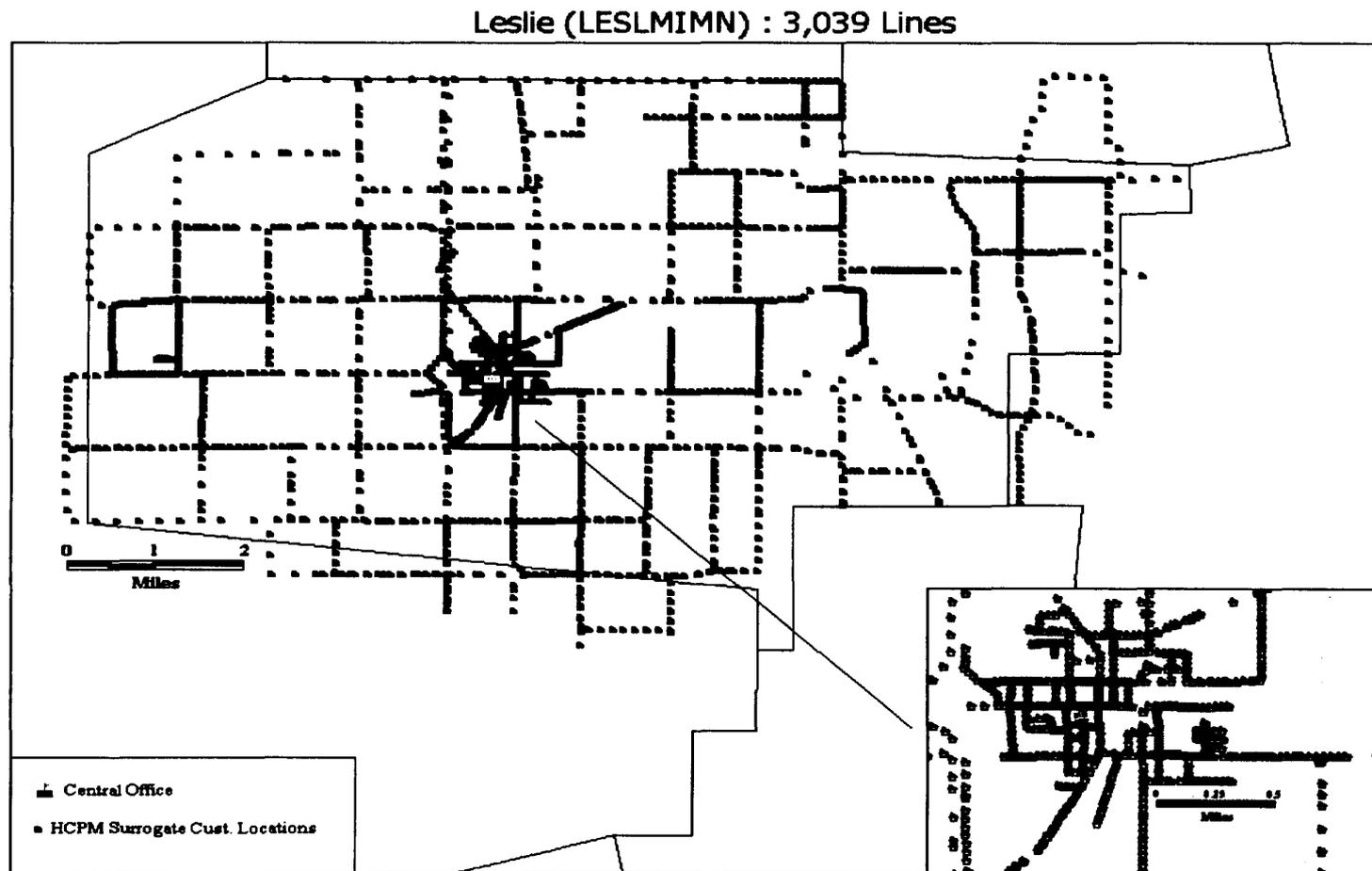


Bay Port, Michigan Surrogate Locations

Bay Port (BYPTMIMN) : 454 Lines



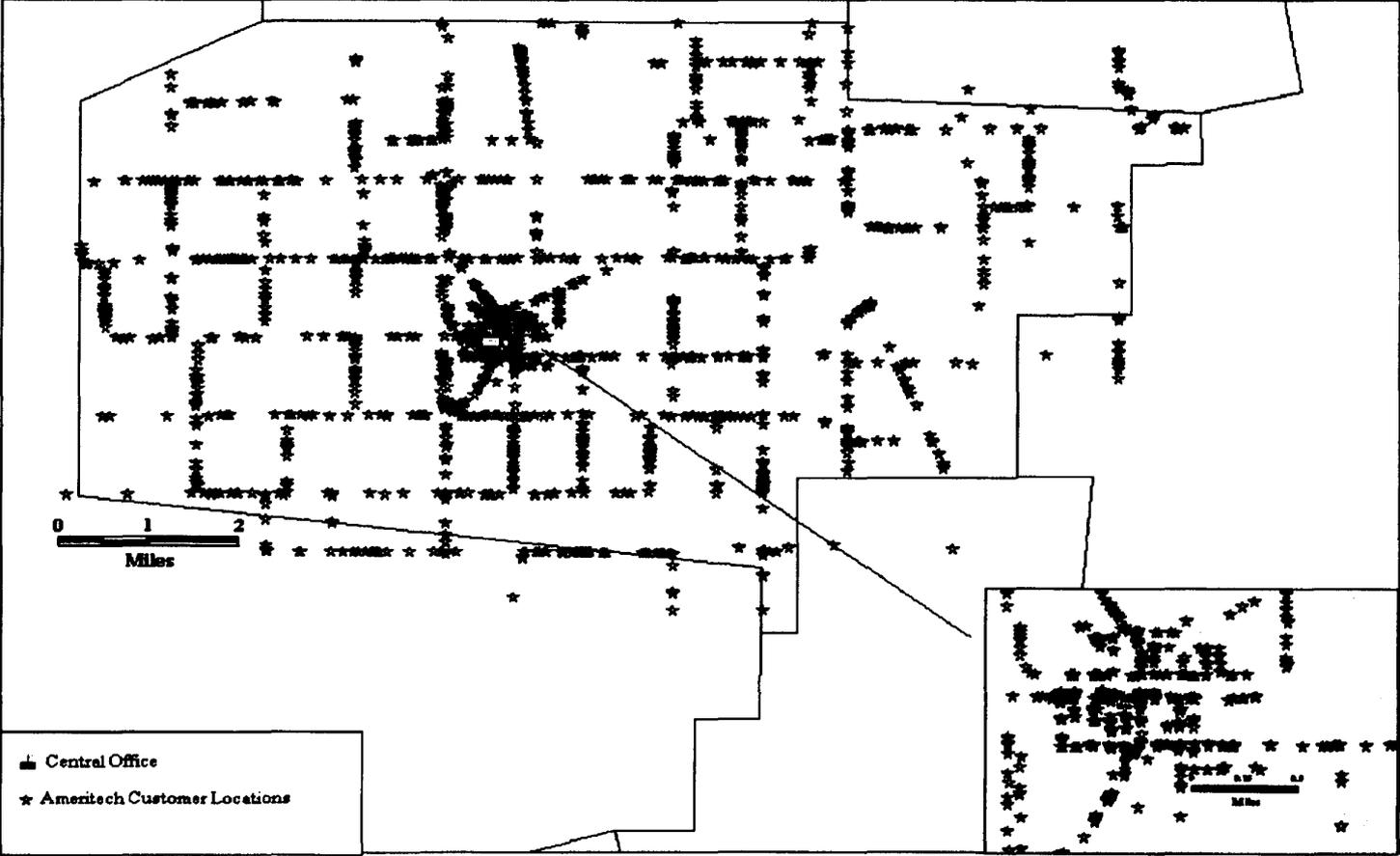
Leslie, Michigan Surrogate and Actual Locations



July 13, 1999

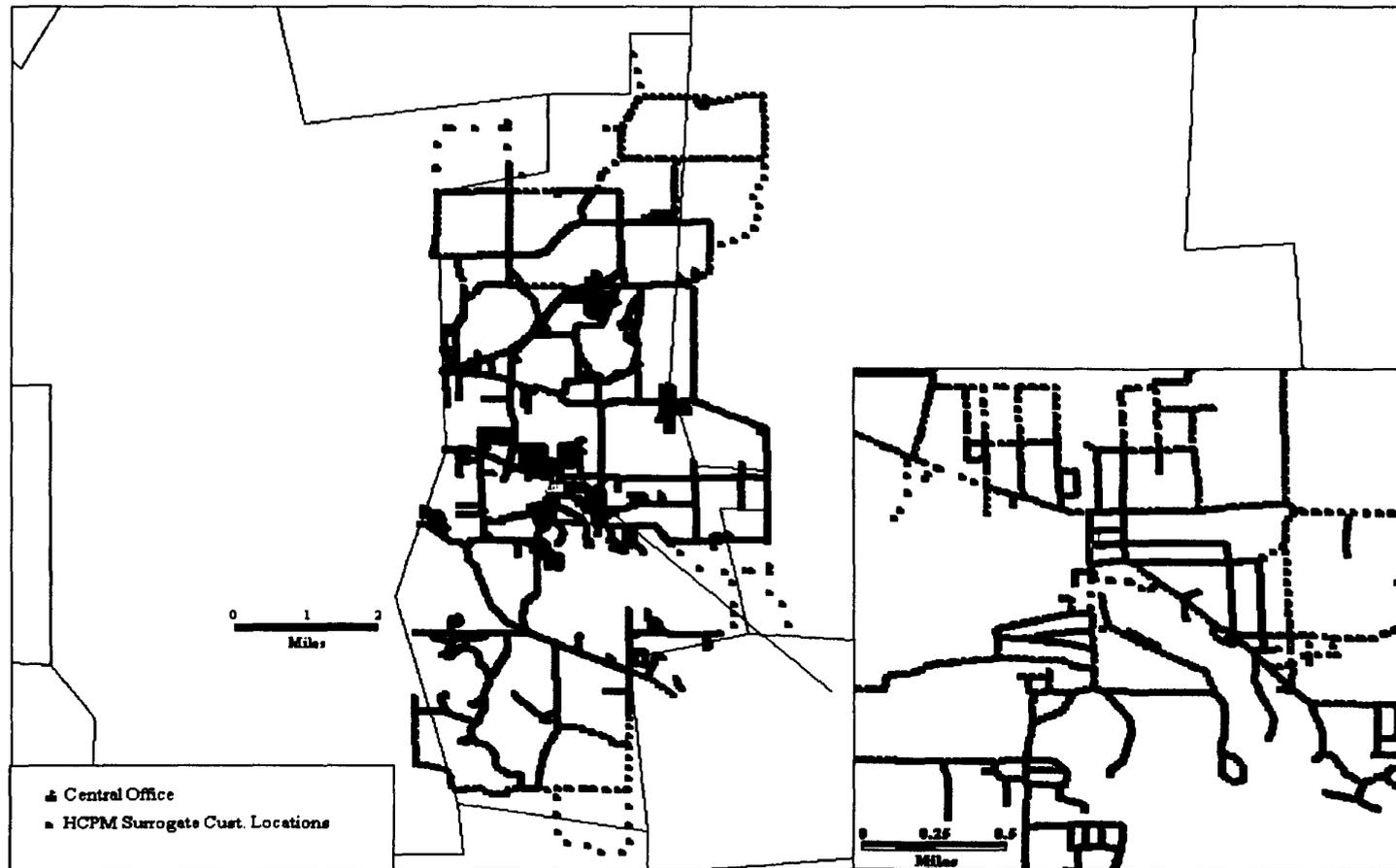
Leslie, Michigan Surrogate and Actual Locations

Leslie (LESLMIMN) : 3,039 Lines



Michigan Center, Michigan Surrogate and Actual Locations

Michigan Center (MCHMIMN): 7,286 Lines



July 13, 1999

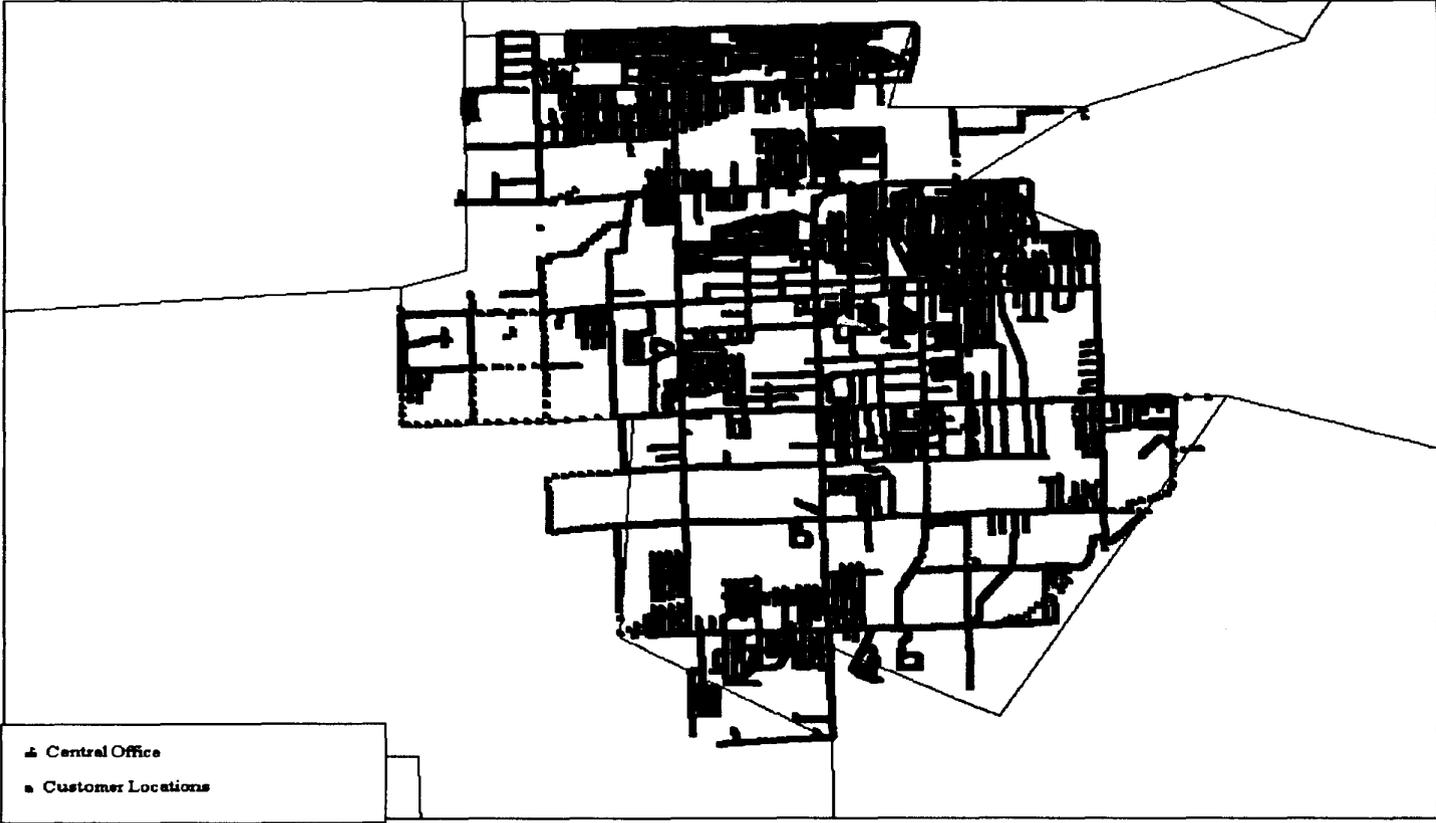
Michigan Center, Michigan Surrogate and Actual Locations

Michigan Center (MCHMIMN): 7,286 Lines



Taylor Wick, Michigan Surrogate Locations

Taylor Wick (TAYLMIWK) 39,459 Lines



Clustering and Density Zone Calculations

- Clustering: varying results by computer
 - For Minnesota, FCC output shows 3593 clusters; we get 3611 clusters
- HCPM density zones are derived from clusters
 - Single location clusters are in medium density zones

Line Counts

- Line counts: overall
 - Consistency with costs in model (1996 line counts vs. 1998 costs)
 - More accurate to use 1998 actual line counts
 - Tie out by wire center and type of line
- Special access lines
 - Consistency between costing and computing cost per line
 - Include intraLATA special access lines
- Open items
 - Users need ability to modify line counts by wire center and type

Inputs

- Investment
 - Sharing
 - Cable cost
 - Placement cost
 - Plant mix
- Expense
 - General support
 - Non-plant specific
 - Economic lives

Investment Input Comparisons: Structure Sharing [[JCH to verify]]

Distribution and Feeder

Density Zone	HCPM			MN BCPM		
	UG	Buried	Aerial	UG	Buried	Aerial
0-5	90%	90%	50%	100%	100%	50%
5-100	90%	90%	50%	90%	98%	50%
100-200	85%	85%	50%	90%	94%	50%
200-650	65%	65%	50%	80%	81%	50%
650-850	65%	65%	50%	80%	80%	50%
850-2550	65%	65%	50%	80%	80%	50%
2550-5000	55%	55%	35%	80%	80%	50%
5000-10000	55%	55%	35%	80%	80%	50%
>10000	55%	55%	35%	80%	80%	50%

Investment Input Comparisons: Placement Costs (Normal Soil Conditions)

Distribution

Density Group	HCPM			MN BCPM		
	UG	Buried	Aerial	UG	Buried	Aerial
0-5	\$1.72	\$0.77	\$1.51	\$2.25	\$1.47	\$2.24
5-100	\$1.72	\$1.40	\$1.51	\$2.23	\$1.82	\$2.22
100-200	\$1.97	\$1.60	\$1.98	\$6.28	\$4.46	\$2.73
200-650	\$2.49	\$2.03	\$1.98	\$6.60	\$5.74	\$2.76
650-850	\$2.84	\$2.31	\$2.27	\$8.17	\$8.26	\$3.28
850-2550	\$3.47	\$2.83	\$2.27	\$8.26	\$8.26	\$3.28
2550-5000	\$4.88	\$3.97	\$2.64	\$8.71	\$8.71	\$3.83
5000-10,000	\$7.96	\$6.48	\$2.72	\$9.47	\$9.47	\$3.83
10,000+	\$12.44	\$10.13	\$2.72	\$10.41	\$10.41	\$3.83

Feeder

Density Group	HCPM			MN BCPM		
	UG	Buried	Aerial	UG	Buried	Aerial
0-5	\$1.72	\$0.77	\$1.51	\$2.25	\$1.44	\$2.24
5-100	\$1.72	\$1.40	\$1.51	\$2.48	\$1.80	\$2.22
100-200	\$1.97	\$1.60	\$1.98	\$3.97	\$3.47	\$2.73
200-650	\$2.49	\$2.03	\$1.98	\$5.32	\$5.13	\$2.76
650-850	\$2.84	\$2.31	\$2.27	\$6.85	\$7.11	\$3.28
850-2550	\$3.47	\$2.83	\$2.27	\$7.11	\$7.11	\$3.28
2550-5000	\$4.88	\$3.97	\$2.64	\$8.64	\$8.64	\$3.83
5000-10,000	\$7.96	\$6.48	\$2.72	\$9.72	\$9.72	\$3.83
10,000+	\$12.44	\$10.13	\$2.72	\$10.80	\$10.80	\$3.83

Investment Input Comparisons: Plant Mix

Distribution

Density Group	HCPM			MN BCPM		
	UG	Buried	Aerial	UG	Buried	Aerial
0-5	0.0%	60.0%	40.0%	13.1%	74.3%	12.6%
5-100	1.0%	62.0%	37.0%	13.1%	74.3%	12.6%
100-200	2.0%	68.0%	30.0%	5.8%	86.9%	7.4%
200-600	4.0%	66.0%	30.0%	5.8%	86.9%	7.4%
600-800	8.0%	62.0%	30.0%	5.8%	86.9%	7.4%
800-2550	20.0%	50.0%	30.0%	3.3%	91.1%	5.6%
2550-5000	40.0%	30.0%	30.0%	20.3%	75.4%	4.3%
5000-10,000	60.0%	10.0%	30.0%	20.3%	75.4%	4.3%
10,000+	90.0%	0.0%	10.0%	69.6%	30.4%	0.0%

Investment Input Comparisons: Plant Mix, con't

Copper Feeder

Density Group	HCPM			MN BCPM		
	UG	Buried	Aerial	UG	Buried	Aerial
0-5	5.0%	50.0%	45.0%	0.5%	97.3%	2.2%
5-100	5.0%	50.0%	45.0%	3.6%	94.2%	2.2%
100-200	5.0%	50.0%	45.0%	12.3%	86.9%	0.9%
200-600	20.0%	40.0%	40.0%	12.3%	86.9%	0.9%
600-800	40.0%	30.0%	30.0%	12.3%	86.9%	0.9%
800-2550	60.0%	25.0%	15.0%	79.1%	20.9%	0.0%
2550-5000	75.0%	15.0%	10.0%	84.3%	15.7%	0.0%
5000-10,000	90.0%	5.0%	5.0%	84.3%	15.7%	0.0%
10,000+	95.0%	0.0%	5.0%	100.0%	0.0%	0.0%

Fiber Feeder

Density Group	HCPM			MN BCPM		
	UG	Buried	Aerial	UG	Buried	Aerial
0-5	5.0%	50.0%	45.0%	0.5%	97.3%	2.2%
5-100	5.0%	50.0%	45.0%	3.6%	94.2%	2.2%
100-200	5.0%	50.0%	45.0%	12.3%	86.9%	0.9%
200-600	20.0%	40.0%	40.0%	12.3%	86.9%	0.9%
600-800	40.0%	30.0%	30.0%	12.3%	86.9%	0.9%
800-2550	60.0%	25.0%	15.0%	79.1%	20.9%	0.0%
2550-5000	75.0%	15.0%	10.0%	84.3%	15.7%	0.0%
5000-10,000	90.0%	5.0%	5.0%	84.3%	15.7%	0.0%
10,000+	95.0%	0.0%	5.0%	100.0%	0.0%	0.0%

Sensitivity Analysis - Minnesota

Modifications by Category	Loop Investment per Line	Monthly USF Loop Cost	Basic Local Service Cost	Local Service Cost Incremental Change
HCPM with Default Inputs	\$656	\$17.44	\$20.54	N/A
HCPM with BCPM Inputs				
1. Structure Sharing	\$682	\$17.84	\$20.94	\$0.40
2. Placement Cost	\$892	\$21.55	\$24.64	\$3.70
3. Plant Mix	\$978	\$23.04	\$26.14	\$1.50

Discussion Items

- Cable cost regressions
- Placement cost regressions
- Plant mix

Expense Inputs

- Regressions and adjustments
- General support
- Application of expenses
- Economic lives

User Needs

- More complete documentation
- More complete users guide
- More complete explanation of inputs
- Ability to change line counts
- Ability to analyze model, e.g.:
 - Are the clustering algorithms doing what they are supposed to do?
 - Are the feeder and distribution algorithms doing what they are supposed to do?
 - Is sharing applied properly?
 - What is the effect of optimization routines?

Commission Requirements

- Ability to verify engineering design
- Ability to audit the model
- Ability to modify and model different inputs and assumptions
- Ability to review and analyze effect of inputs and outputs
- Ease of use

Areas of Further Analysis

- Comparison of HCPM clusters and actual distribution areas
- Optimization techniques
 - In clustering
 - In distribution and feeder development
- Line count "true-up"
- Switching
- Internal consistency
- External studies

MICHIGAN BELL
TELEPHONE COMPANY
TARIFF M.P.S.C. NO. 20R

Ameritech
Tariff

PART 4

SECTION 6

PART 4 - Exchange Access Services
SECTION 6 - Exchange Maps and Boundary
Descriptions

Original Sheet No. 203

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

OWENDALE

BASE RATE AREA - Enclosed by the following boundary:

Starting at the center of the southwest 1/4 of Section 11, T15N, R10E, Village of Owendale, Huron County; east to the center of the southeast 1/4 of Section 11; south to the center of the northeast 1/4 of Section 14; west to the center of the northwest 1/4 of Section 14; north to the starting point.

EXCHANGE SERVICE AREA - Enclosed by the following boundary:

Starting at the intersection of Kilmanagh Road and Brown Road (northwest corner of Section 3, Brookfield Township, Huron County; east to the north 1/4 post of Section 5, Grant Township; south to the south 1/4 post of Section 20 (McAlpin Road); west to Owendale Road; south to Bach Road; west to Risky Road; north to Canboro Road; east to Brown Road; north to the starting point.

Material formerly appeared in Tariff M.P.S.C. No.1 R, Original Sheet No. 303

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Issued: October 12, 1995

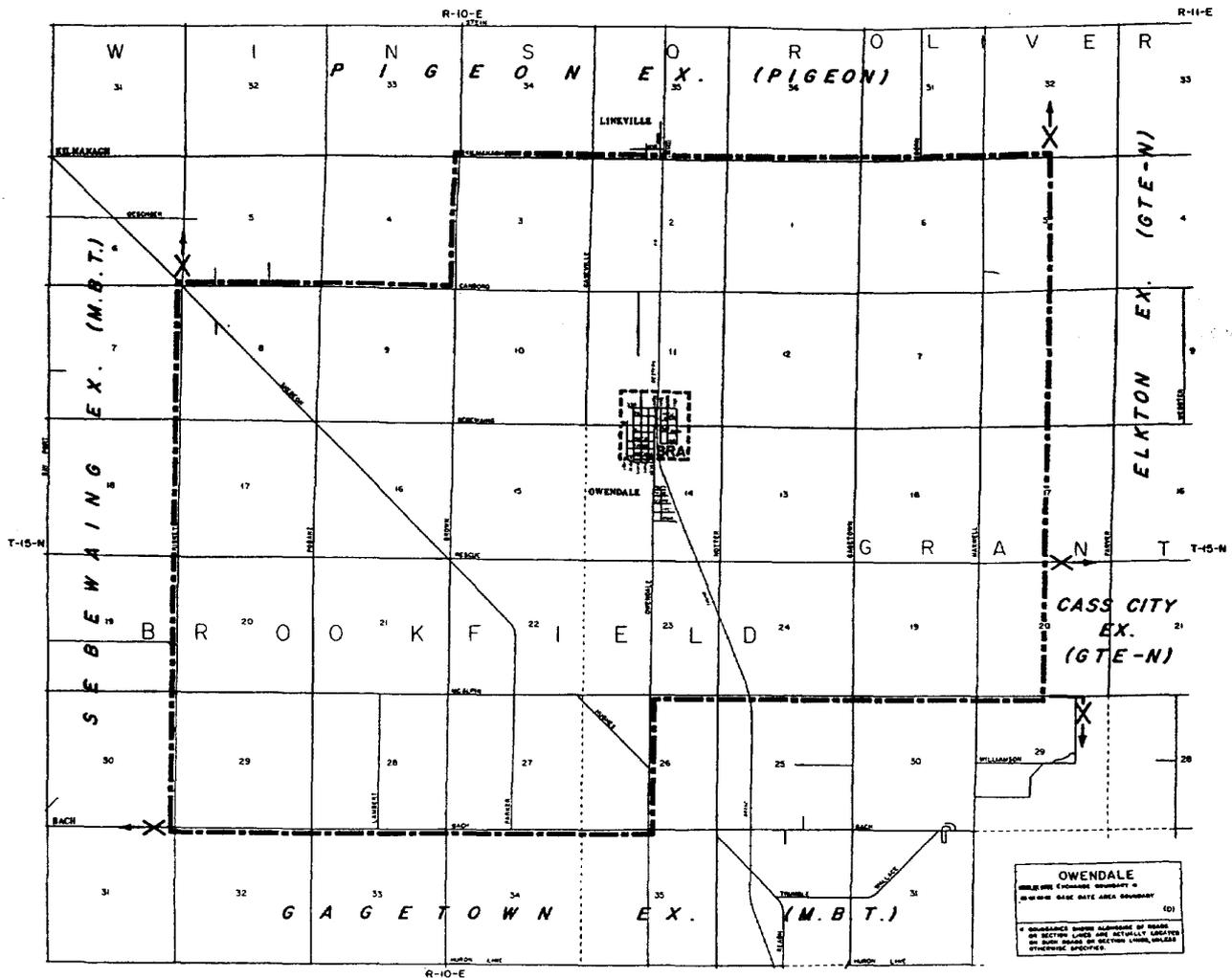
Effective: October 12, 1995

By Gail F. Torreano, Vice President - State and Federal Government
Detroit, Michigan

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

OWENDALE

Sheet 203.1



Material formerly appeared in Tariff M.P.S.C. No. 1 R, Original Sheet No. 303.1
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 Detroit, Michigan

MICHIGAN BELL
TELEPHONE COMPANY
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PART 4

SECTION 6

PART 4 - Exchange Access Services
SECTION 6 - Exchange Maps and Boundary
Descriptions

Original Sheet No. 99

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

FULTON

BASE RATE AREA - Enclosed by the following boundary:

Starting at the center of Section 16, Wakeshma Township, Kalamazoo County; east to the center of Section 15; south to the center of Section 22; west to the center of Section 21; north to the starting point.

EXCHANGE SERVICE AREA - Enclosed by the following boundary:

Starting on 36th Street at the west 1/4 post of Section 6, Wakeshma Township, Kalamazoo County; east to 39th Street; north to "T" Avenue; east to a point 0.1 mile west of 42nd Street; south to a point 0.1 mile north of "U" Avenue; southeasterly through the intersection of 42nd Street and "U" Avenue to a point 0.1 mile south and 0.1 mile east of that intersection; south to a point 0.4 mile south of "U" Avenue; east to the east line of Section 11; south to the east 1/4 post of Section 26; west to the center of Section 28; south to "Y" Avenue; west to the southwest corner of Section 30; north to the starting point.

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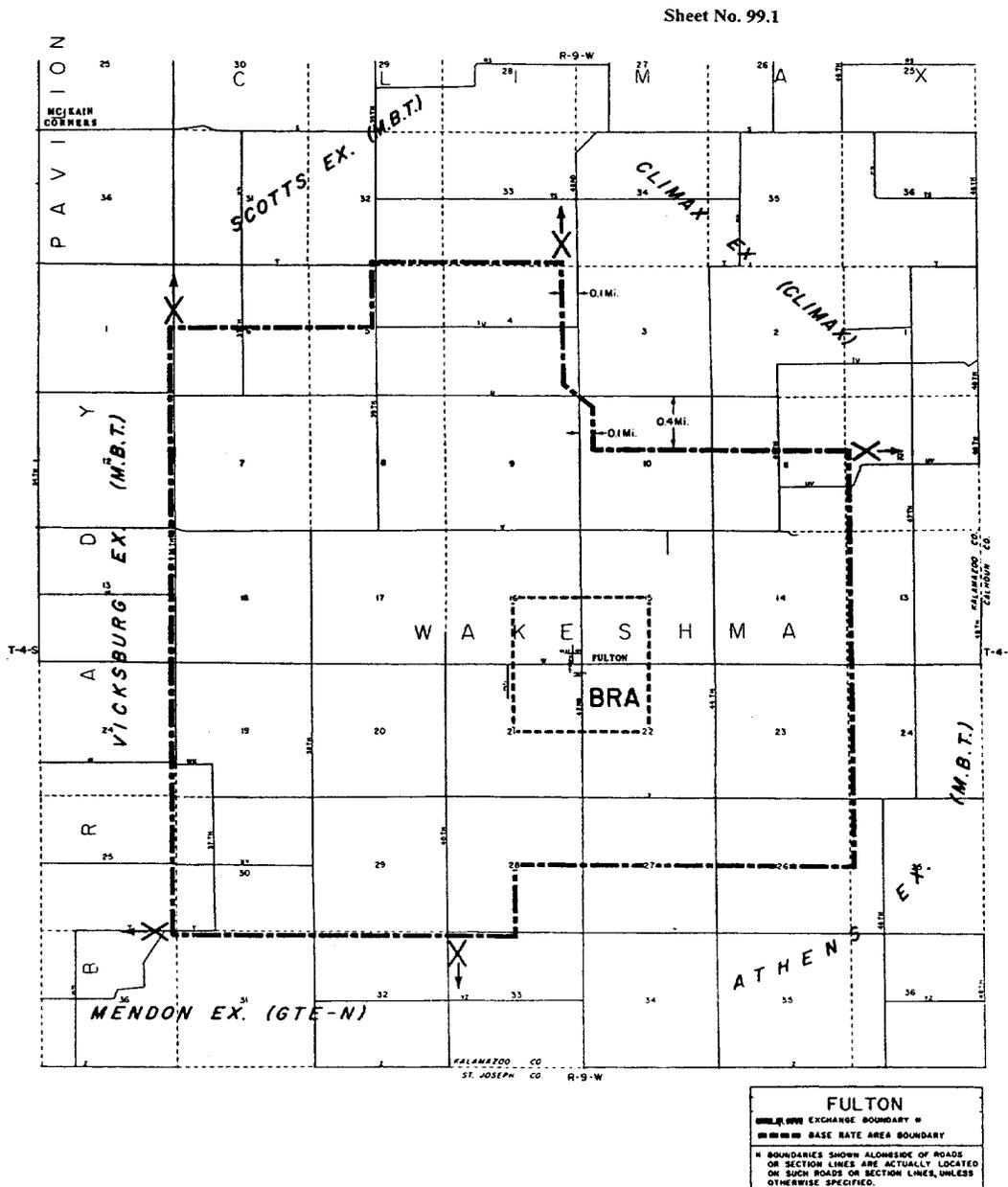
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By Gail F. Torreano, Vice President - State and Federal Government
Detroit, Michigan

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

FULTON



Material formerly appeared in Tariff M.P.S.C. No. 1 R, Original Sheet No. 198.1
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Detroit, Michigan

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TELEPHONE COMPANY
TARIFF M.P.S.C. NO. 20R

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PART 4

SECTION 6

PART 4 - Exchange Access Services
SECTION 6 - Exchange Maps and Boundary
Descriptions

Original Sheet No. 16

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

BAY PORT

BASE RATE AREA - Enclosed by the following boundary:

Starting on the shore of Saginaw Bay at the east line of Section 36, T17N, R9E, Fair Haven Township, Huron County; south to the east 1/8 post of the southeast 1/4 of Section 36; west to the west 1/8 post of the southwest 1/4 of Section 36; north to the shore of Saginaw Bay; easterly along the shoreline to the starting point.

EXCHANGE SERVICE AREA - Enclosed by the following boundary:

Starting on the shore of Saginaw Bay at the north line of Section 20, McKinley Township, Huron County; east to the northeast corner of Section 20; south to Richmond Road; west to the north 1/8 post of the southeast 1/4 of Section 29; south to a point 0.1 mile south of Berne Road; east to a point 0.1 mile west of Pobanz Road; south to the Chesapeake and Ohio Railroad; westerly on the railroad to Bay Port Road; south to Weale Road; west to Highway M-25; south to Haist Road; west to the southwest corner of Section 22, Fair Haven Township; north to the northwest corner of Section 22; west to the shore of Saginaw Bay; northeasterly along the shoreline to the starting point.

Material formerly appeared in Tariff M.P.S.C. No.1 R, Original Sheet No. 115

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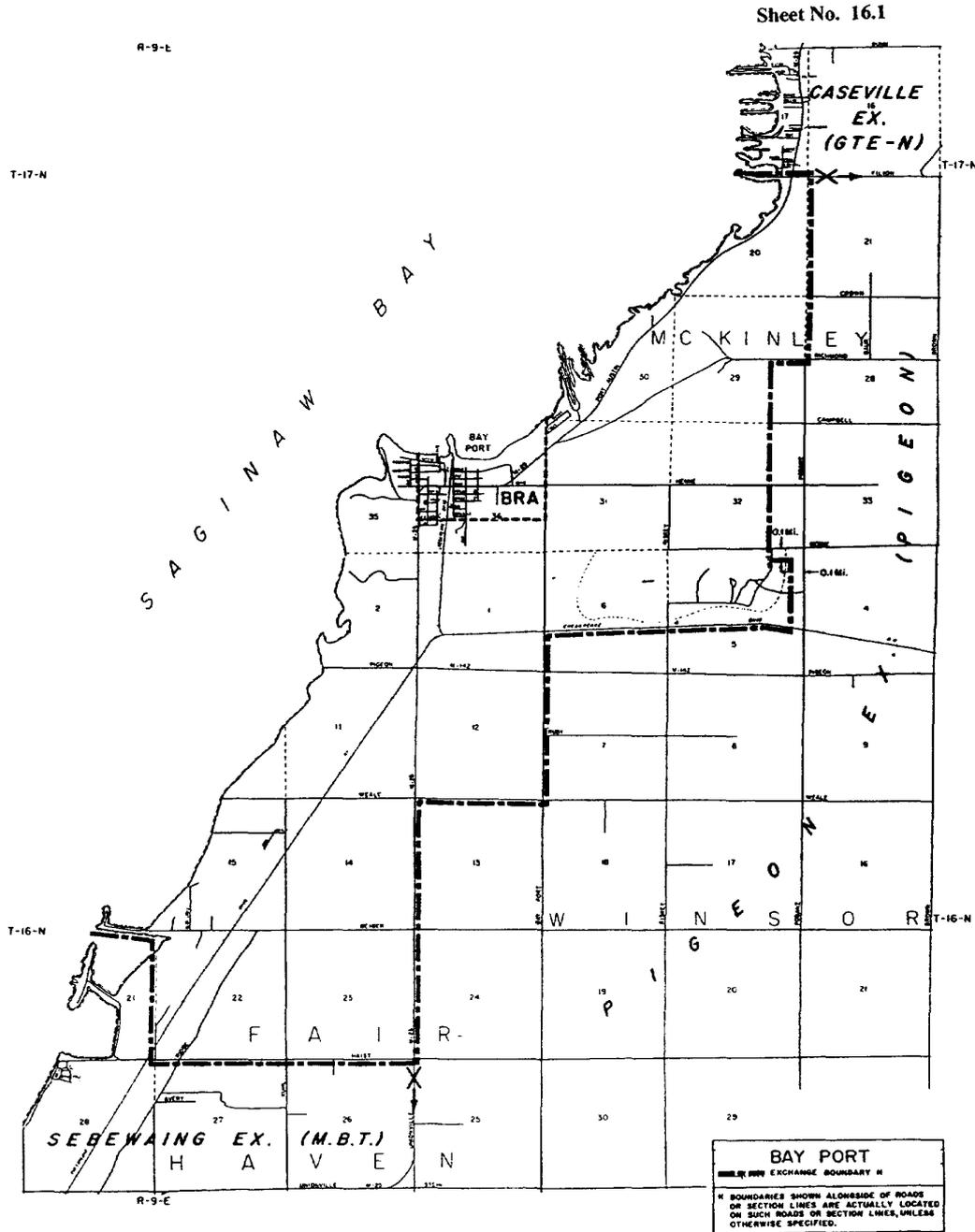
Issued: October 12, 1995

Effective: October 12, 1995

By Gail F. Torreano, Vice President - State and Federal Government
Detroit, Michigan

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

BAY PORT



Material formerly appeared in Tariff M.P.S.C. No. 1 R, Original Sheet No. 115.1
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Detroit, Michigan

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TELEPHONE COMPANY
TARIFF M.P.S.C. NO. 20R

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PART 4

SECTION 6

PART 4 - Exchange Access Services
SECTION 6 - Exchange Maps and Boundary
Descriptions

Original Sheet No. 159

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

LESLIE

BASE RATE AREA - Enclosed by the following boundary:

Starting at the west 1/4 post of Section 21, Leslie Township, Ingham County; east to a point 1/8 mile east of the west 1/4 post of Section 22; south to a point 1/8 mile east of the west 1/4 post of Section 27; west to the north 1/8 post of the southeast 1/4 of Section 28; south to the south 1/8 post of the southeast 1/4 of Section 28; west to the southwest corner of Section 28; north to the starting point.

EXCHANGE SERVICE AREA - Enclosed by the following boundary:

Starting at the intersection of Plains Road and Edgar Road (northwest corner of Section 1, Onondaga Township, Ingham County); east to Meridian Road; south to the southwest corner of Section 5, Bunker Hill Township; east to a point 0.3 miles east of the northwest corner of Section 11; south to the east-west 1/8 line of the northwest 1/4 of Section 11; east to a point 0.1 mile west of the east line of Section 11; south to a point 0.1 mile north of the south line of Section 11; west to a point 0.1 mile east of the west line of Section 11; south to a point 1/8 mile north of the south line of Section 23; west to a point 0.1 mile west of the east line of Section 21; south to the south line of Section 33; west to the southwest corner of Section 31; south to the east 1/8 post of the southeast 1/4 of Section 12; north to the north 1/4 post of Section 12; west to the southwest corner of Section 4; north to Territorial Road; west on Territorial Road to the west line of Section 6; north to the west 1/4 post of Section 6; west to the west 1/4 post of Section 1, Tompkins Township; north to the northwest corner of Section 1; west to the southwest corner of Section 35, Onondaga Township; north to the northwest corner of Section 11; east to the northeast corner of Section 11; north to the starting point.

Material formerly appeared in Tariff M.P.S.C. No.1 R, Original Sheet No. 259

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Issued: October 12, 1995

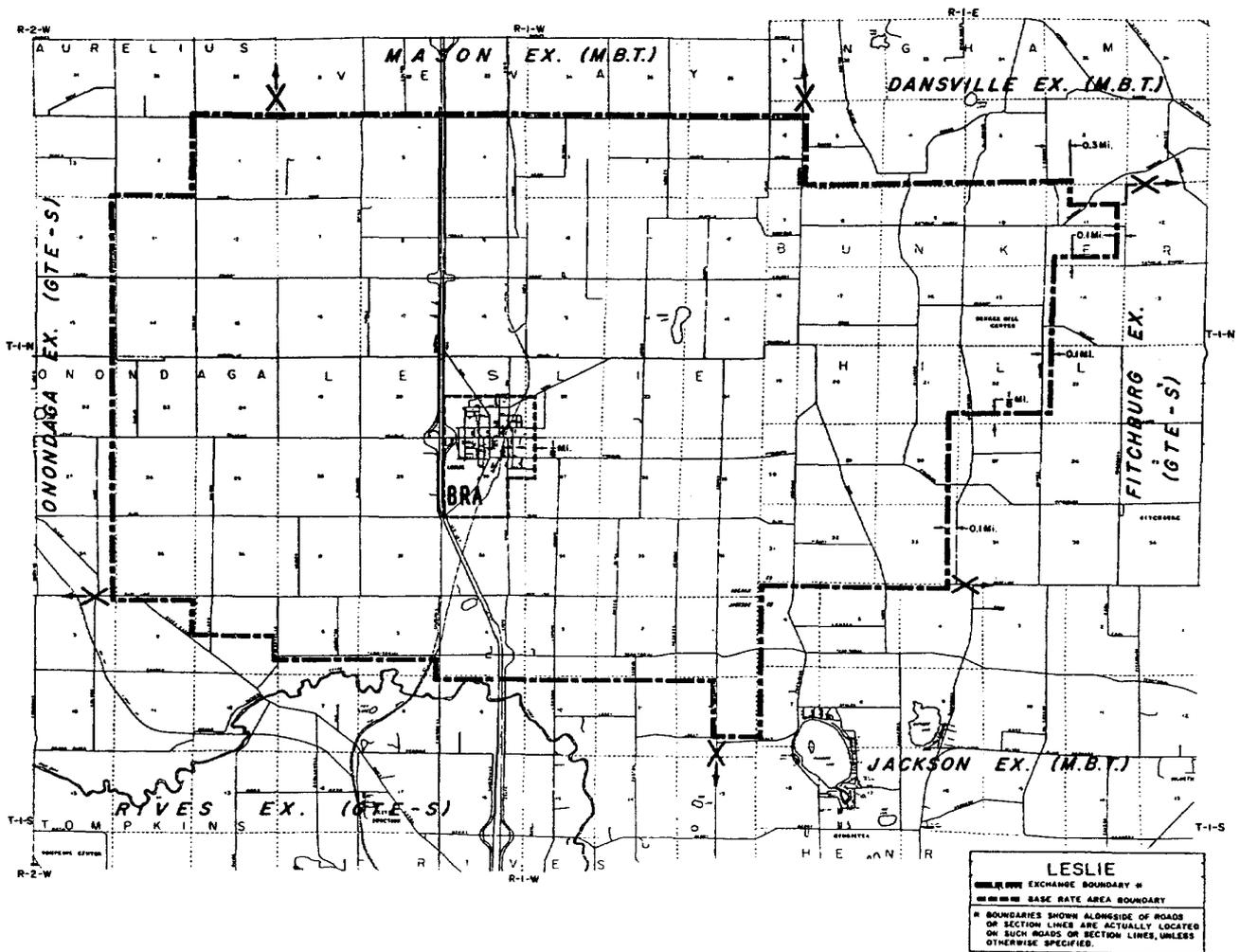
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Detroit, Michigan

LOCAL TELEPHONE EXCHANGE SERVICES BOUNDARIES

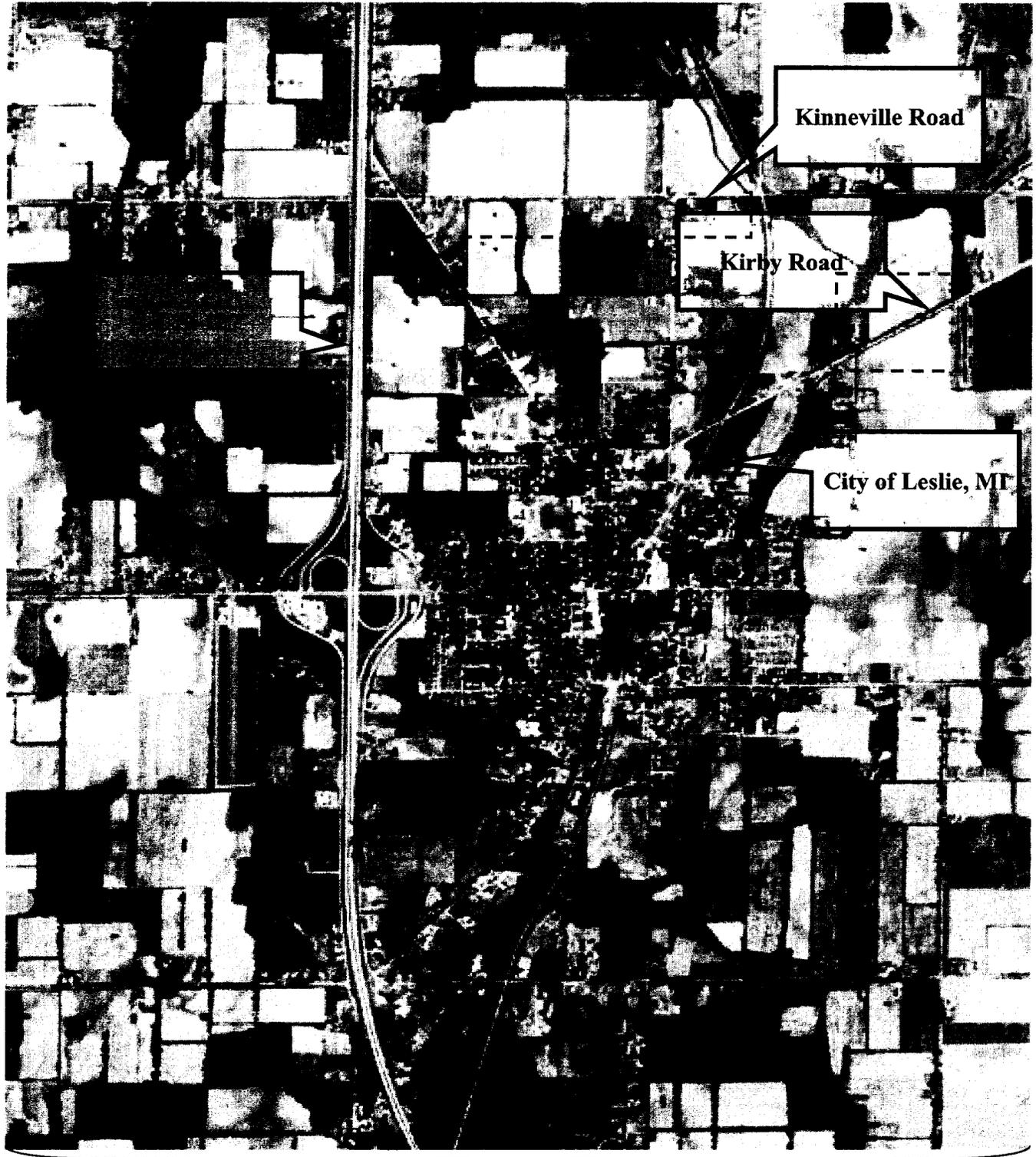
LESLIE

Sheet No. 159.1

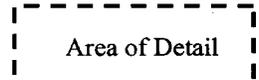
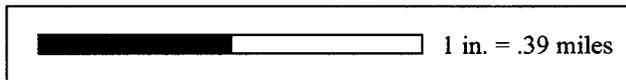


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Detroit, Michigan

Leslie, Michigan and Surrounding Areas



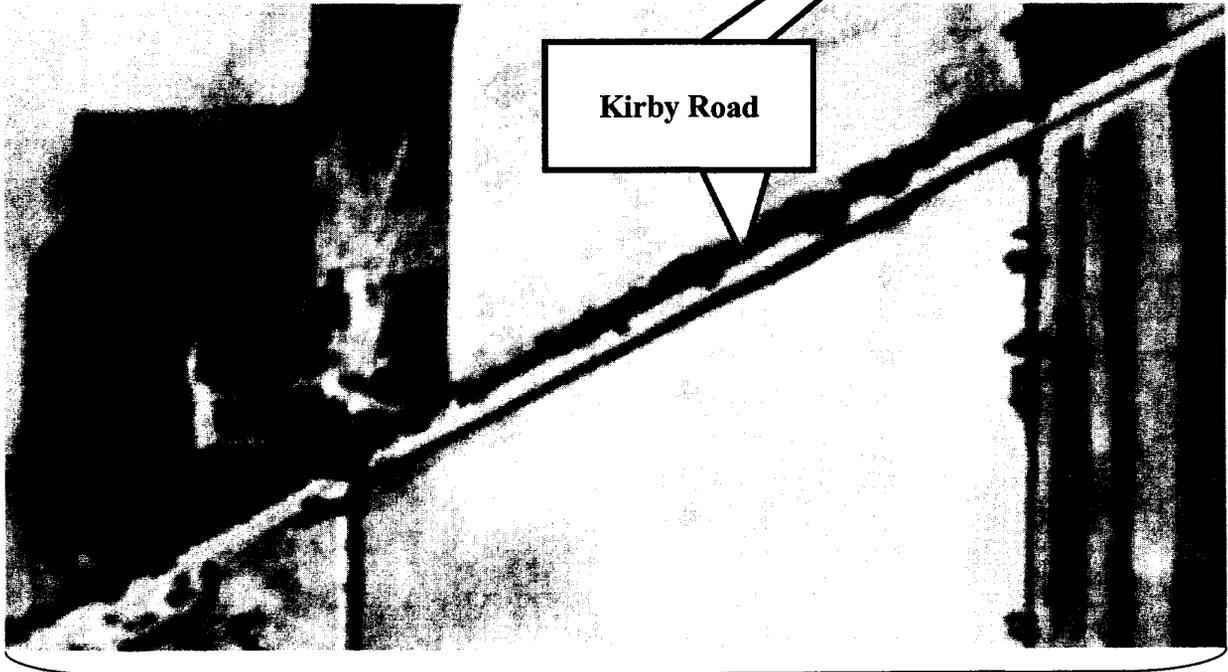
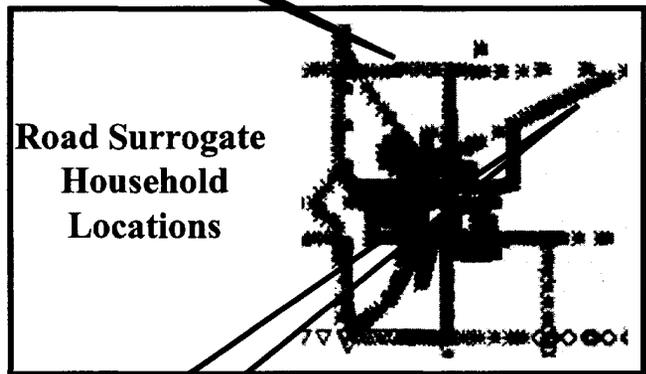
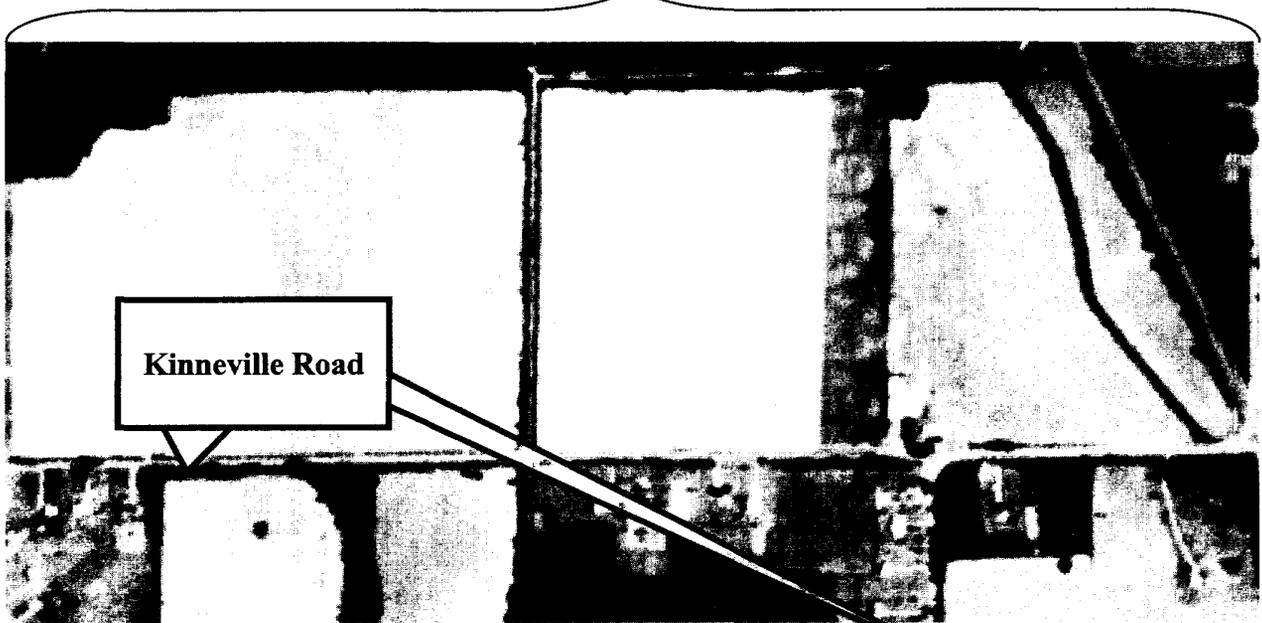
2.7 miles



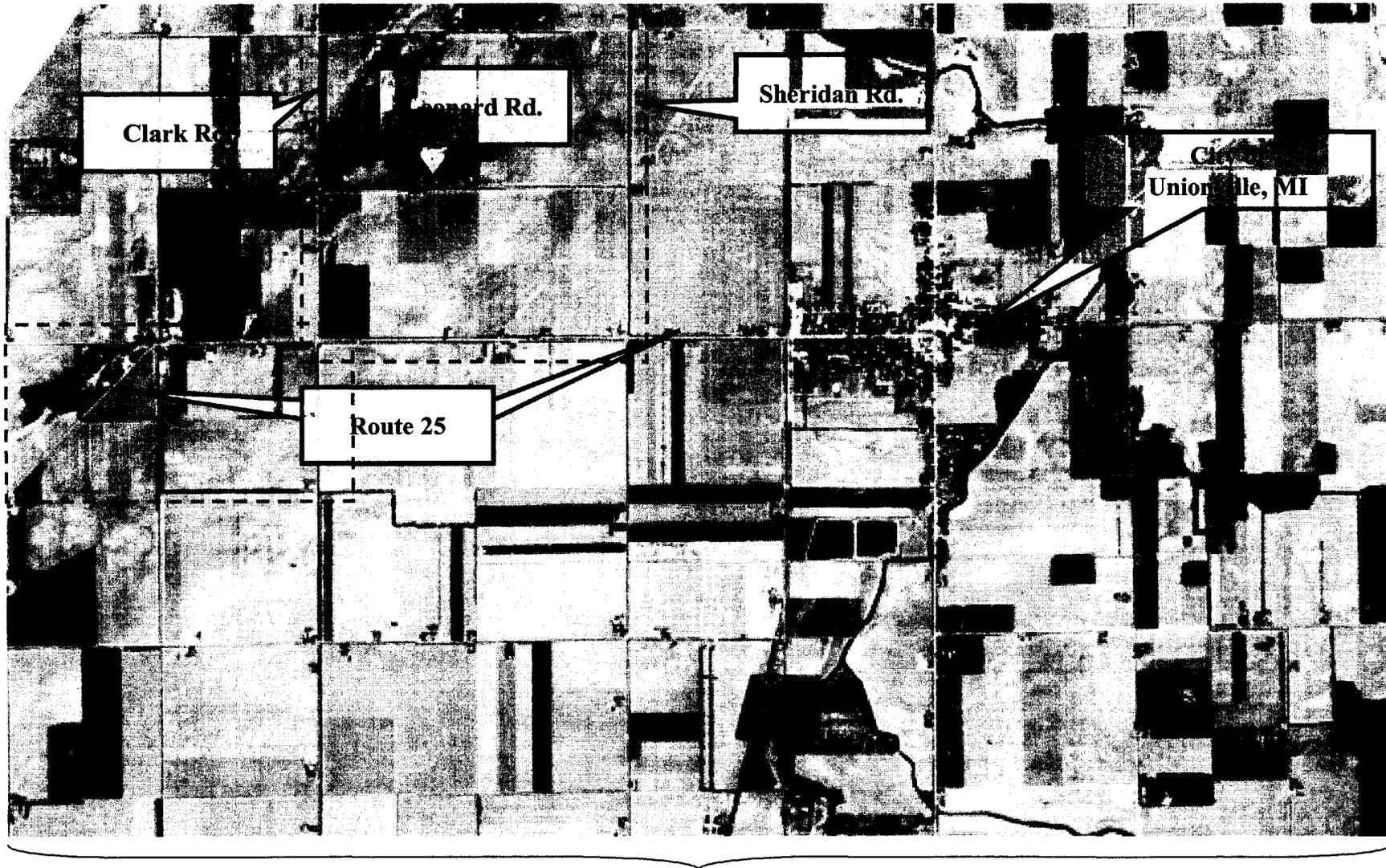
Satellite Photo Taken June 1988

Leslie, Michigan: Detail

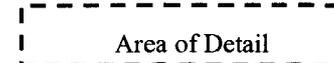
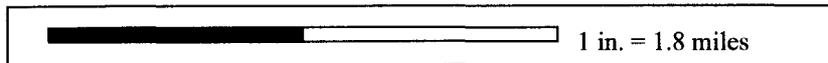
.95 miles



Unionville, Michigan and Surrounding Areas

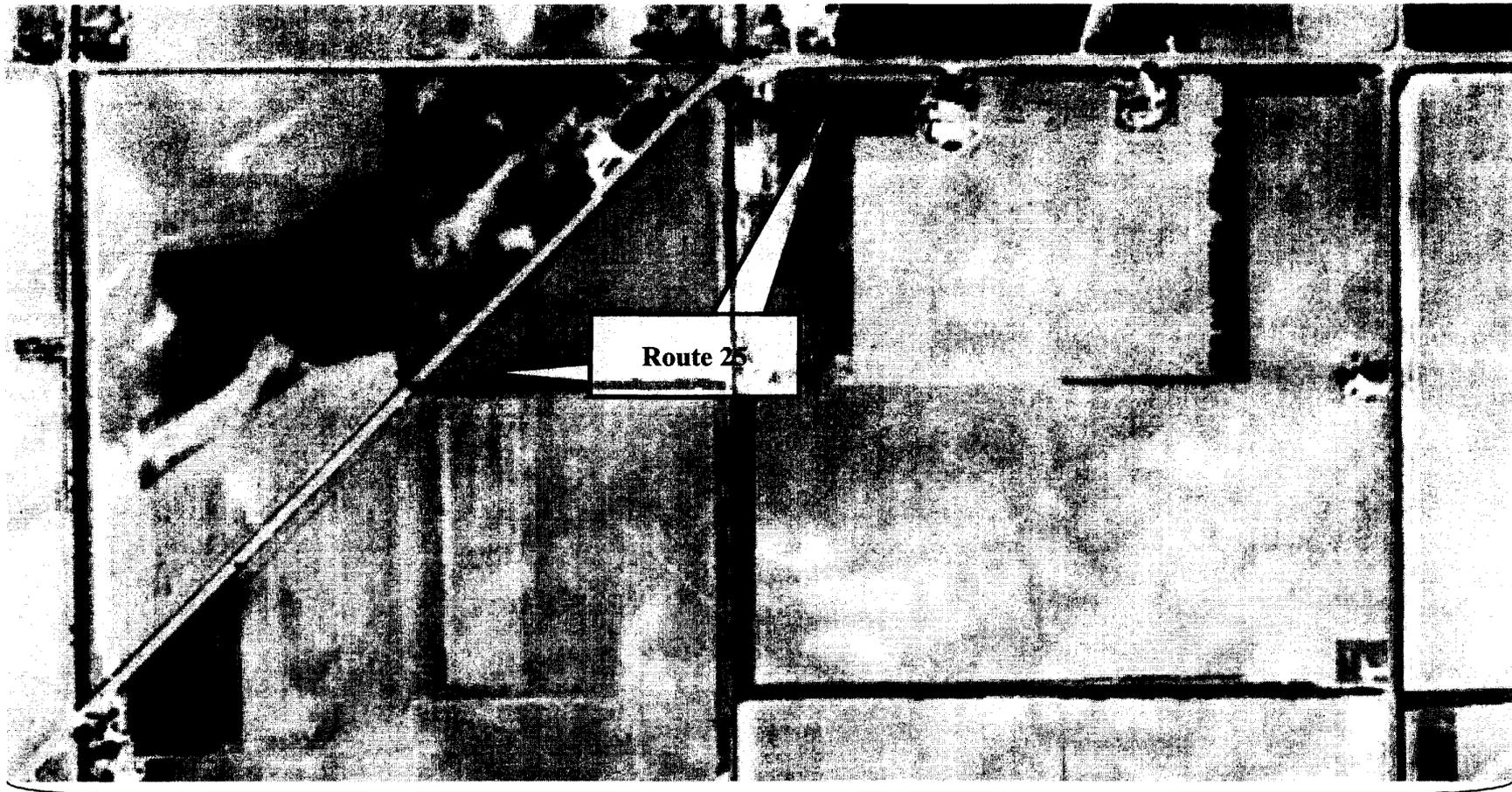


5 miles

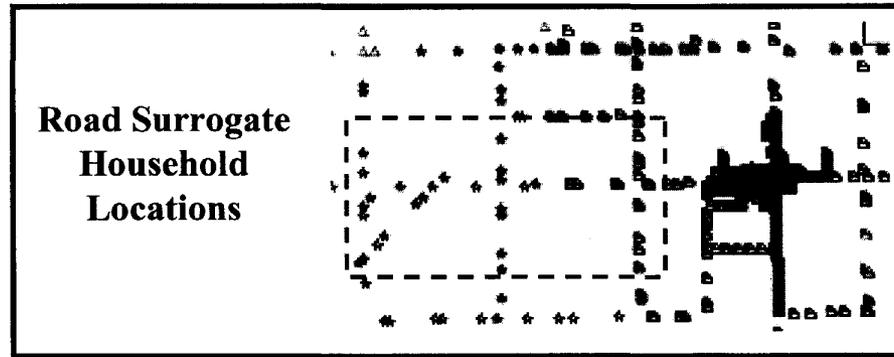


Satellite Photo Taken June 1988

Route 25, Approx. 3 miles West of Unionville, Michigan

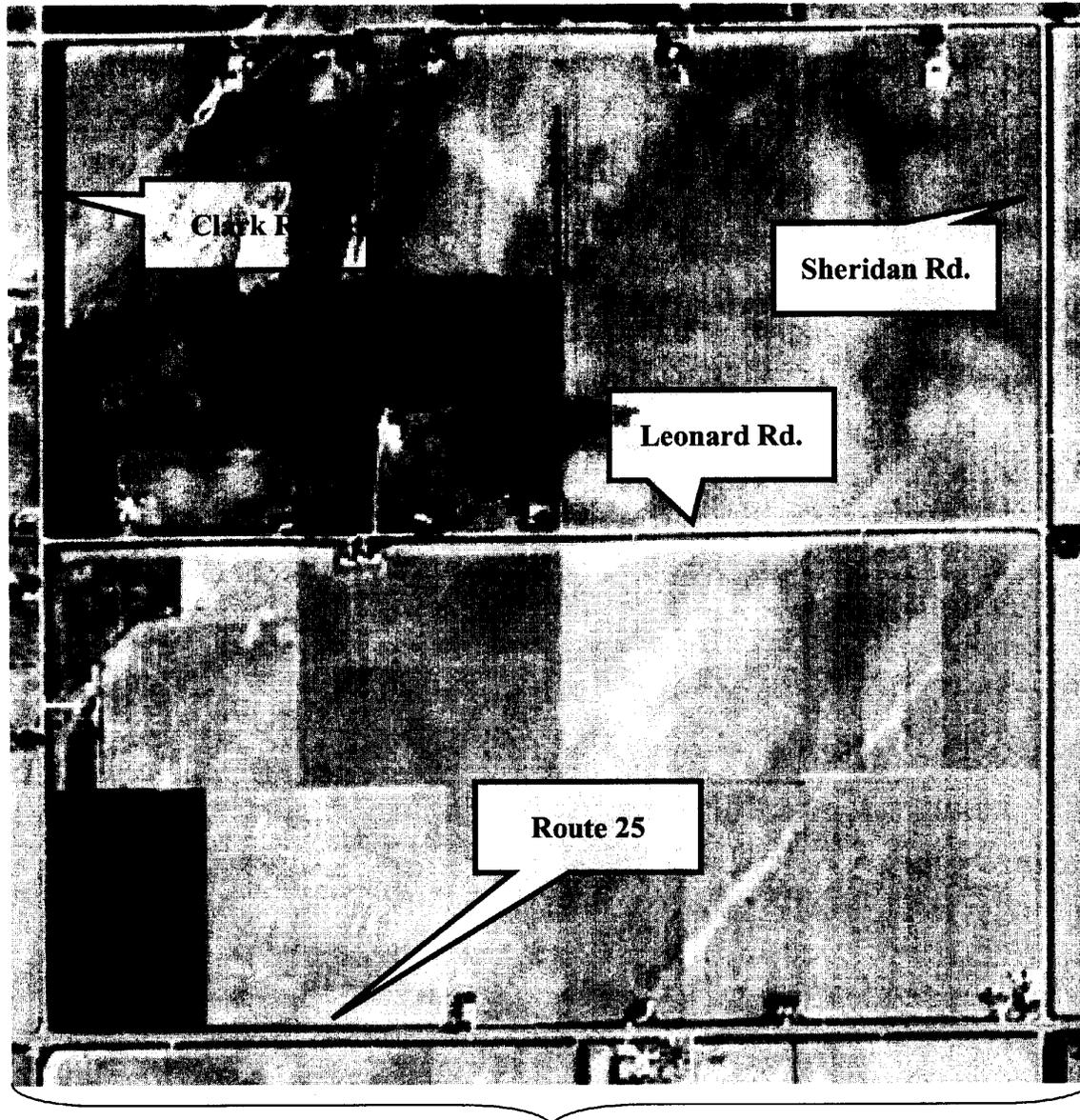


1.25 miles

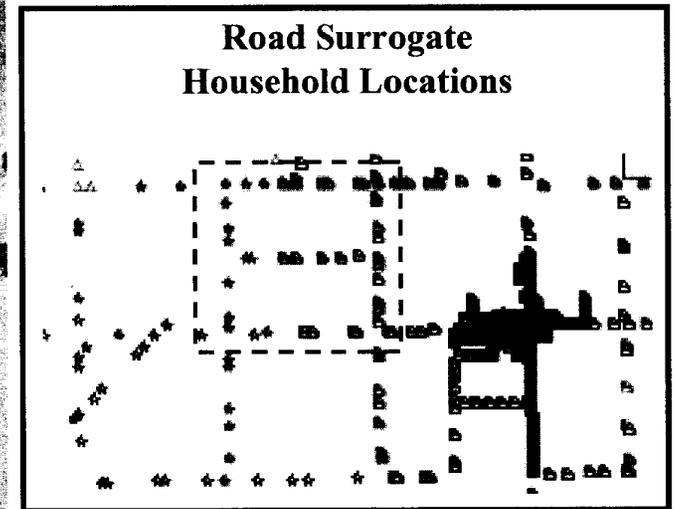


Area of Detail

Approx. 1 mile Northwest of Unionville, Michigan

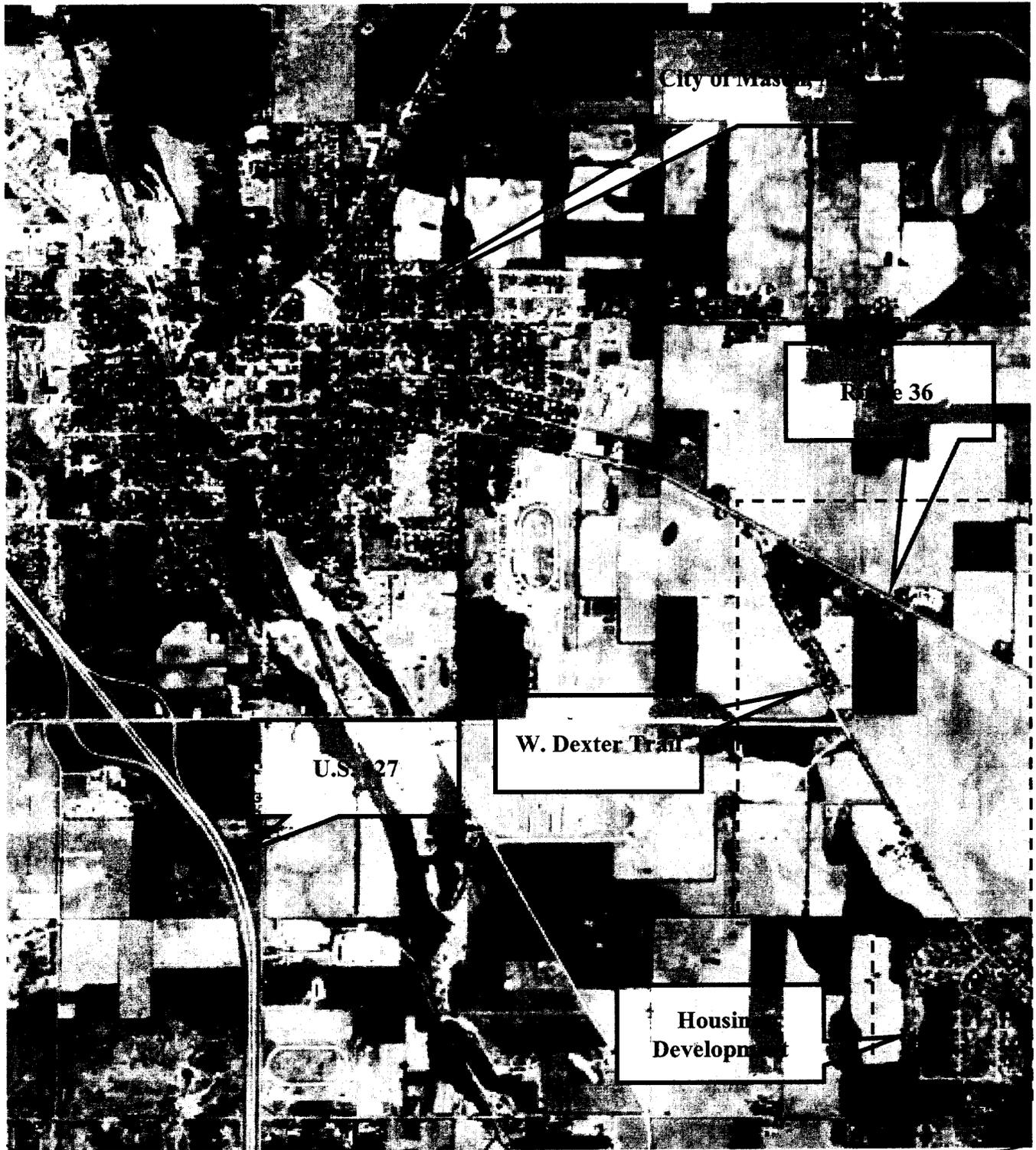


1.2 miles

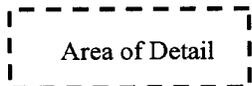
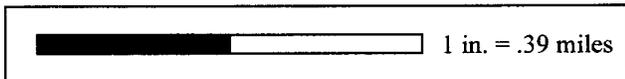


Area of Detail

Mason, Michigan and Surrounding Areas



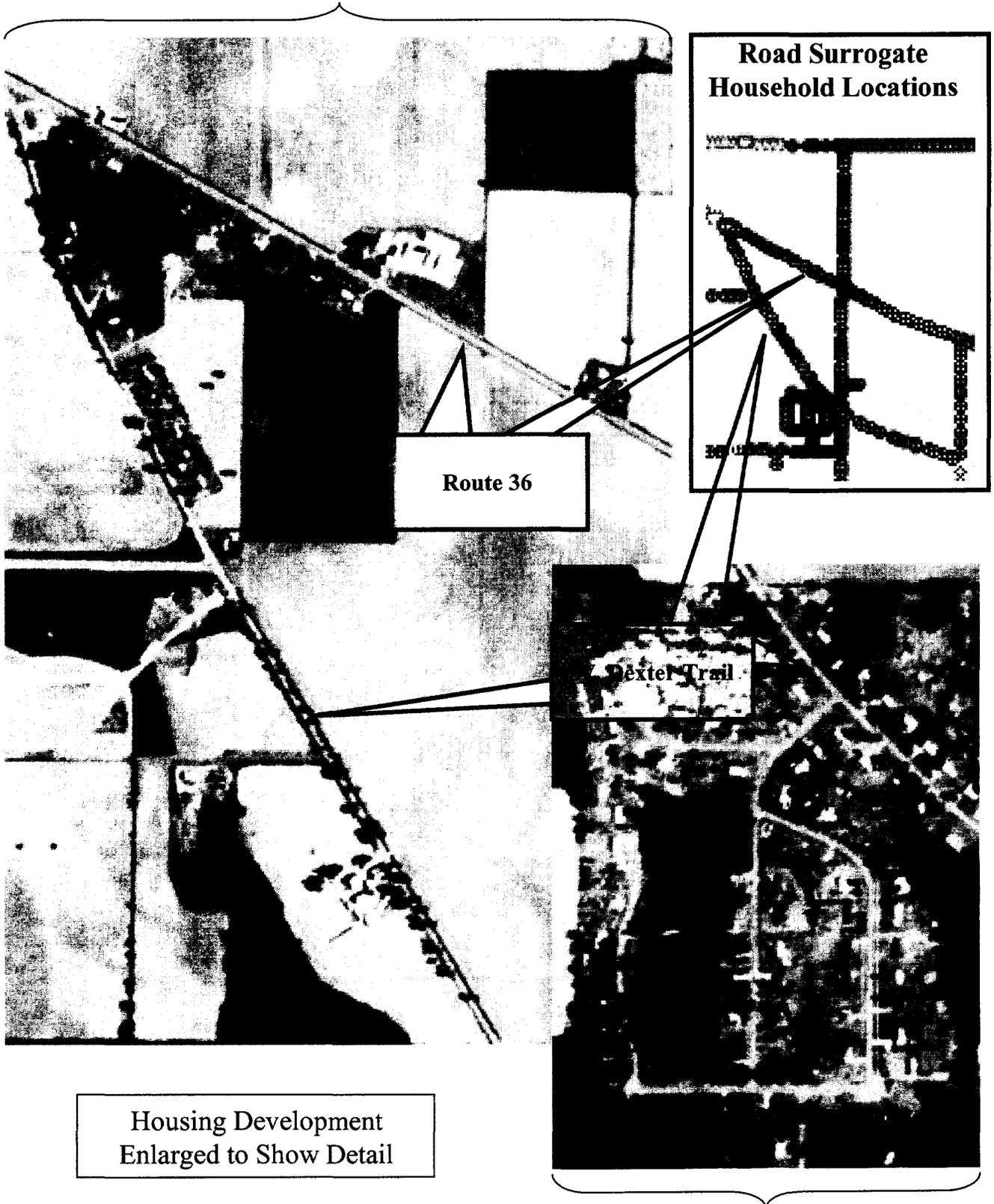
2.7 miles



Satellite Photo Taken June 1988

Mason, Michigan: Dexter Trail Housing Development

.75 miles



Route 36

**Road Surrogate
Household Locations**

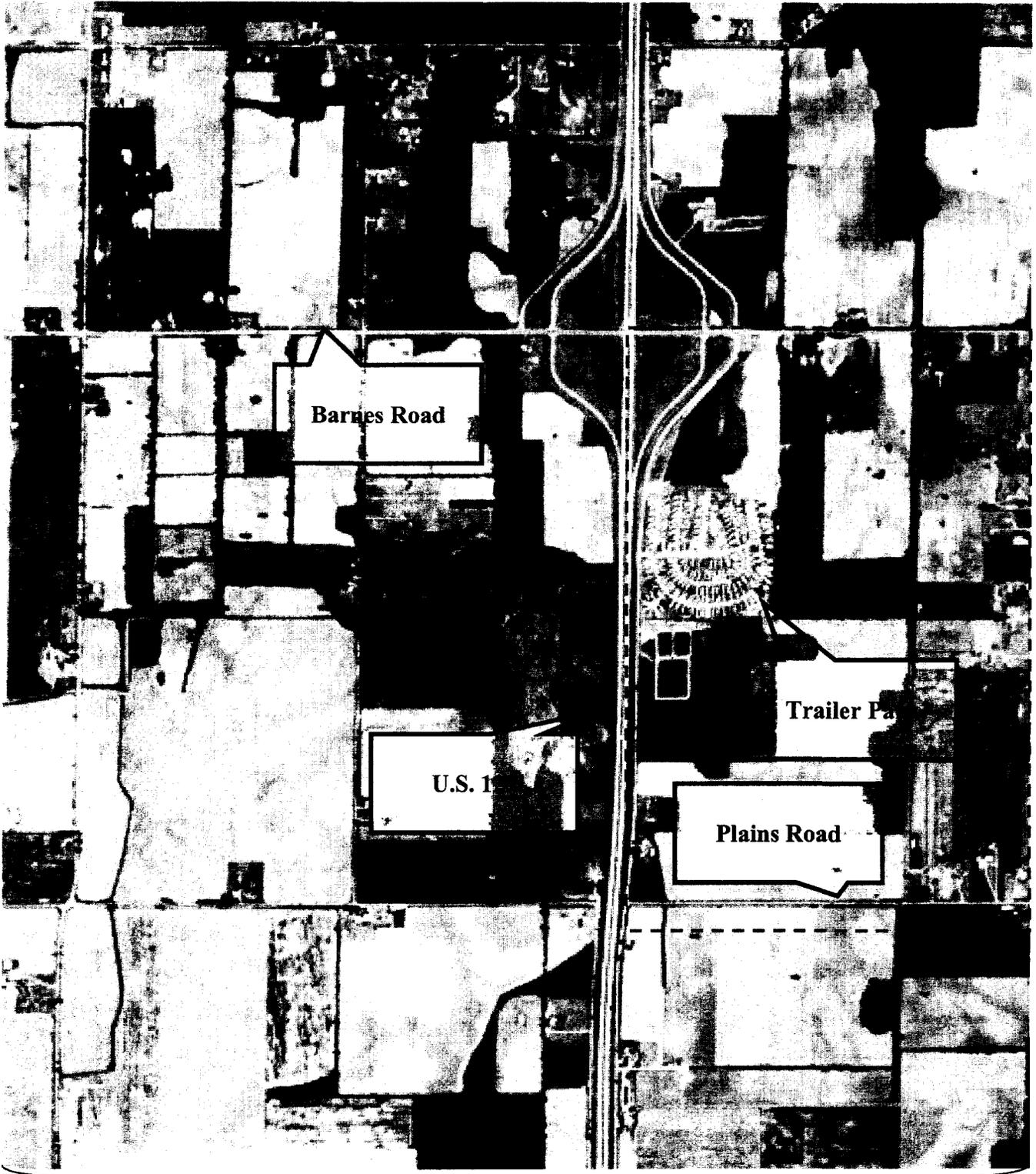
Dexter Trail

Housing Development
Enlarged to Show Detail

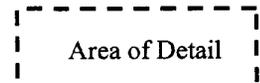
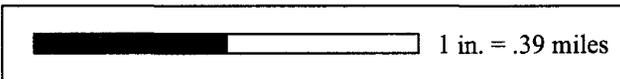
Satellite Photos Taken June 1988

.38 miles

Approx. 5 Miles South of Mason, Michigan

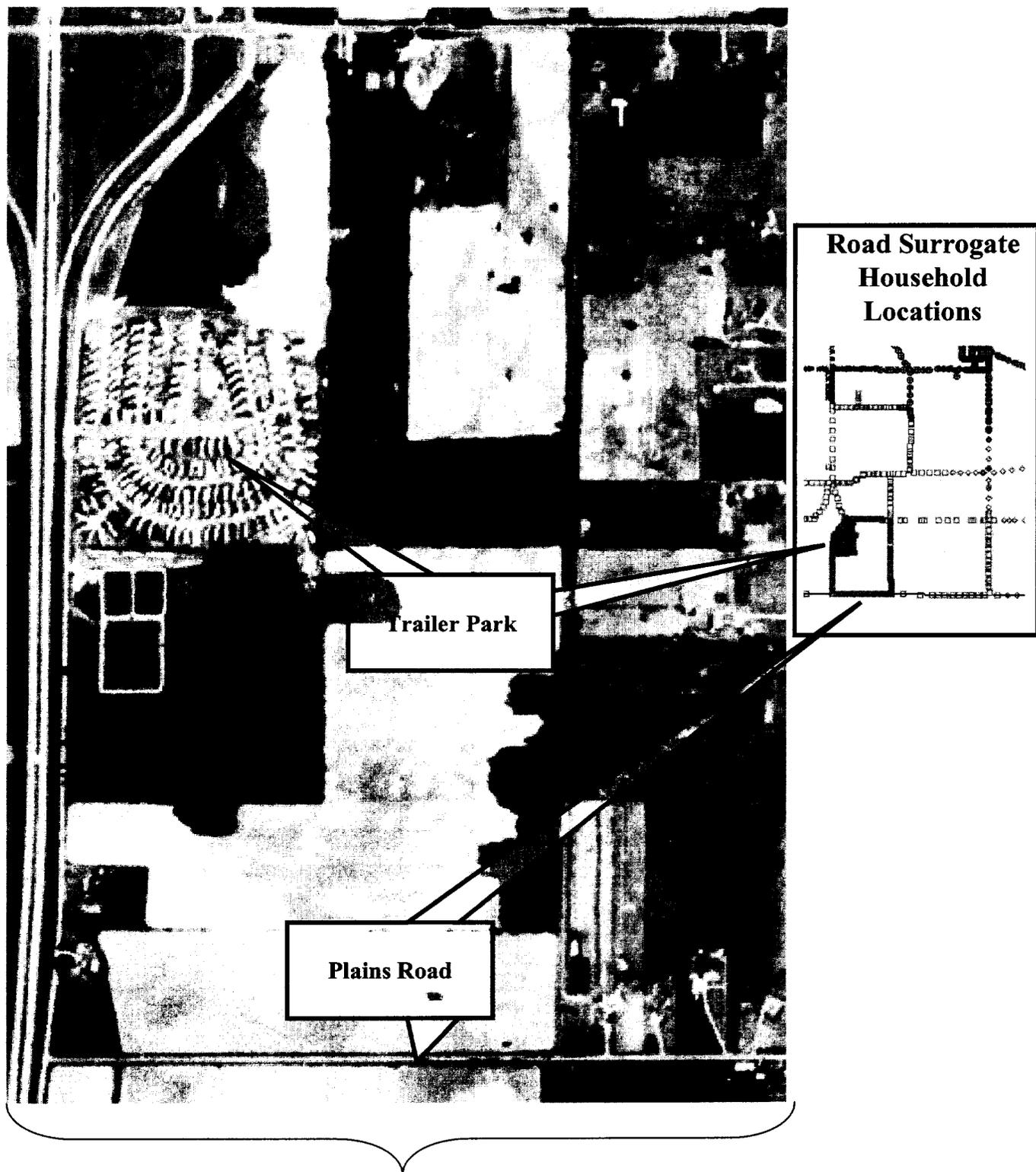


2.7 miles



Satellite Photo Taken June 1988

Approx. 5 Miles South of Mason, Michigan



.825 miles