

LAPEER COUNTY

800 MHz CONSORTIUM

BUSINESS PLAN



Amended August 27, 2009

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1. EXECUTIVE SUMMARY

Public Safety Emergency Responders

Lapeer County has 31 emergency response agencies – 15 fire departments, 9 police agencies, 2 primary ambulance agency, and 5 medical first responder teams. Together, these agencies provide emergency response services to the 90,875 County residents and all of those who travel through or to Lapeer County to work. These agencies are dispatched to emergencies through one consolidated 9-1-1 Public Safety Answering Point (PSAPs) located in Lapeer County.

Recommendations

After thorough analysis of four options to improve the communication capacity of emergency responders in Lapeer County, the Authority Board recommends that:

- The Michigan Public Safety Communication System (MPSCS) become the standard platform for all emergency response equipment for Lapeer County police, fire, EMS, and medical first responder agencies;
- All public safety agencies migrate their communications equipment to this common platform;
- The site towers already operated by the MPSCS (both in Lapeer and surrounding counties) be used to transmit radio signals and additional towers (four estimated) be constructed to ensure 97% geographic coverage for portable radios across Lapeer County;
- This equipment and infrastructure be funded by revenues generated through a county-wide dedicated millage in an amount and for a period to be determined by the County Board of Commissioners;
- The recommended millage be subject to a vote of the residents of Lapeer County in November 2009, as prescribed by Michigan law.

Migration Plan

If the majority of county voters agree to this dedicated millage, the addition of equipment, and the migration to the MPSCS would guarantee:

- At least 97% geographic coverage with mobile radios, 97% portable in-building coverage in medium buildings in the cities of Lapeer and Imlay City, and 97% portable in-building coverage in light buildings in the remainder of Lapeer County;
- All public safety agencies would operate on a common communications platform, thereby allowing for interagency communications to occur within Lapeer County, with agencies in the surrounding counties and the state;
- Compliance with changes in federal communications guidelines that would require the majority of our existing paging equipment to be replaced by January 1, 2013, due to being incapable of narrow banding according to FCC standards.

2. STATEMENT OF THE PROBLEM

Local units of government should have authority and discretion over the level of service that is appropriate for their constituencies. However, in times of emergency response, it is frequently necessary for police, fire, and ambulance agencies to work across jurisdictional boundaries. To do so requires that agencies have communication equipment that operates on the same frequency and has similar capacity. Lapeer County's public safety agencies currently have one system for all agencies, but has serious coverage problems in many outlying areas. The current system is out-dated and many parts are no longer made or supported by the manufacturer(s). System failures have already begun to occur and have been mitigated by using some of the few spare parts available today. These problems have increased the level of danger that is faced by officers, firemen, paramedics, and the people they are trying to help.

What is the Need for Common/Updated Equipment?

In July of 2008, a major component of the microwave system which links all communications between the three existing sites failed. This one component in of itself was not damaging to the overall operation of the system. What it's failure did do was reduce a major link of redundant backup to having no backup link of communication. Repair of the part was very time consuming in that it took the manufacturer several months to complete.

By late December 2008 into early January 2009, we had a major failure of the microwave system. The system failed twice; once on December 23, 2008 and again on December 27, 2008. Each time the failure effectively halted our ability to communicate with the public safety agencies in Lapeer County. Fortunately, we were able to utilize the Michigan Public Safety Communications System digital radio system as a backup to maintain a limited level of communication until our own system was repaired.

Repairs to the microwave system were completed on January 9, 2009. Since the microwave system is no longer covered under a service contract due to its age, we have had to pay a high cost on the parts needed to repair the system. We have also purchased spare parts to have on hand in the event another failure occurs.

On any given day in the southern area of Lapeer County an emergency of any nature can prove to be difficult to handle in regards to communicating effectively. There are several areas, due to terrain, that we have very poor or no signal coverage at all.

In all of these instances, however, there has been undue risk for police, fire, EMS personnel, and the public. Large-scale emergency scenes are becoming more and more common. We are all facing a changing reality in the world in which we live. Events like the terrorist strikes of September 11, 2001, and the blackout of August 2003 show that emergency workers are tasked with a greater responsibility for dealing with large-scale emergencies. Additionally, with necessary budget cuts causing a reduction in staff and equipment, many agencies find that they frequently have to rely on assistance from other agencies, as we can no longer staff or equip our agencies to the same extent as before.

Lapeer County has 15 fire departments, 9 police agencies, 2 primary ambulance companies, and 5 medical first responder teams. At a large emergency event, many of these agencies would supply equipment and personnel to assist. Coordinating the response of the public safety community to such an event is a monumental task, the foundation of which is good communications. If communications fail, response times could be delayed, services could be duplicated or ineffective, and most importantly, the lives of the rescuers as well as the public could be placed at great risk.

How Does Public Safety Radio Equipment Work?

In general, police, fire and ambulance radios are similar to cell phones. They only work as long as the radio signal can reach a nearby radio tower/antenna. As illustrated above, failure of the radio places people at risk of injury or death.

Also similar to cell phones, radio communication can become difficult indoors, underground, and in remote locations where it is difficult for a radio tower and a portable radio to establish a signal with one another. Certain emergencies require communications within buildings. This is especially true for fire and police emergencies in urbanized settings.

The impact of poor audio quality, or no signal at all, has the potential for catastrophic events for those in the field who rely on communications equipment as their lifeline. Police officers on a traffic stop that are suddenly confronted with an armed suspect, firefighters who are in a building and need to get out due to a dangerous situation, paramedics who encounter an unruly patient - all of these scenarios are very real and possible within Lapeer County. In order to reduce the possibility of one of these scenarios being played out in our community to a disastrous end, Lapeer County needs to significantly upgrade their communications network to cover the County adequately.

3. RESPONSE TO THE PROBLEM

In response to this problem, the 9-1-1 Authority Board of Directors has been meeting to research the issue, develop this plan, and recommend strategies to overcome this issue. The Authority Board established three criteria for evaluating any plan: 1) interoperability allowing all Police, Fire, and EMS agencies to directly communicate with one another; 2) at least 97% geographic coverage with mobile radios, 97% portable in-building coverage in medium buildings in the cities of Lapeer and Imlay City, and 97% portable in-building coverage in light buildings in the remainder of Lapeer County; 3) sustainability from a funding perspective.

History of 800 MHz in Lapeer County

Prior to the inception of the 9-1-1 Authority Board, each police and fire agency licensed their own radio channels, and communicated on their own frequencies. In some cases, if an agency's radios were equipped with the frequencies of the neighboring jurisdiction, they could monitor the radio traffic of that jurisdiction, but could not broadcast on it. Thus, if a Lapeer City officer were monitoring on their police radio a chase by a Lapeer County Sheriff's deputy that had come into Lapeer City, and wanted to communicate with that deputy, it required having the Lapeer City officer radio the Lapeer dispatcher, having the Lapeer dispatcher call the County dispatcher on the telephone to relay the message, then having the County dispatcher radio the County car with the message. It was time consuming, frustrating, confusing, and sometimes created a dangerous situation.

With the advent of the 800 MHz radio system in 1996, Lapeer City Police, Lapeer County Sheriff's Department, Imlay City Police, Almont Police, Dryden Police, Lapeer Township Police, Metamora Township Police, North Branch Police and the Michigan State Police combined to form the 800 MHz Communications Coordinating Council. The costs of purchasing the system was paid by a millage.

As word of the ability to talk among various agencies with one radio system got around (interoperability), and officers lauded the effectiveness it created in the work environment, other agencies came on the system. As new private owned agencies came on board, they each paid for their own equipment.

In 1986, the State of Michigan passed legislation that allowed for the imposition of a 4% surcharge on the base phone bill of all wire-line telephones in the state. The legislation allowed up to a 4% surcharge without a vote of the public, and up to a 20% surcharge if the public approved of it in an election. The minimal surcharge was imposed in 1996 in Lapeer County, and the first of the proceeds were used to purchase E911 telephone and radio equipment in the Primary Service Answering Point (PSAP). The proceeds also purchased radio equipment for all police, fire and public owned EMS agencies in the County.

The 800 MHz system, as cited above, is a computer-controlled system, integrating multiple radio frequencies onto one radio system. It is quite complex, and employs hardware and software that is occasionally upgraded as advances in technology occur. Because of this complexity, systems like ours must be upgraded as the vendor moves forward in order to stay viable.

If allowed to become too far outdated, it goes unsupported, and parts become unavailable to repair it as it breaks down. With no revenue stream to allow for these upgrades, money must be found in the individual budgets of the participating entities to pay for them. These entities do not have the resources available and rely on Lapeer County Central Dispatch to keep current with upgrades.

During that same time frame, a subcommittee had been charged to generate a plan that would address the future of the system - what was needed to provide for adequate public safety communication into the future, and how it could be achieved. It pointed out three key goals: Adequate Coverage (getting the radio signal out to all geographic areas of the County); Interoperability (allowing all public safety to communicate on one system so they could talk to one another in an emergency situation); and sustainability (how we pay to

purchase this system, maintain it, and have sufficient money saved to upgrade when needed). These three key goals had appeared repeatedly over time as agenda items to be addressed in meetings of what is now called the 9-1-1 Authority Board of Directors.

It is painfully obvious that the near future is going to bring to the forefront the need to once again upgrade the system. It is currently an analog radio system. The future calls for digital voice transmission. Some agencies are now beginning to use in-car computer terminals, creating a growing need to communicate data over radio waves. We have poor coverage in the SE, NW and SW corners of the County. In Metamora and Hadley it's so bad, that there are areas that we are unable to communicate effectively. The CEB (central electronics bank) is at capacity, and will need to be expanded. With all this in mind, the 800 MHz Funding Plan Committee was formed to consider how to achieve Coverage, Interoperability, and Sustainability, and then how to locate the financial resources necessary to pay for them.

Subcommittee Membership

This subcommittee began meeting in early 2008 to identify the current gaps in emergency communication, examine solutions to those gaps, and strategies to reach those solutions. It's membership included police, fire, and Lapeer County Administrative leaders and others to lend expertise in specific areas. This subcommittee developed this plan on behalf of the Authority Board and with the endorsement of other public safety committees.

4. CURRENT COMMUNICATION TECHNOLOGY

Analog and Digital Signals

The current communications systems operated in Lapeer County for use by Public Safety (Police, Fire & EMS) all operate on an analog system. For the person in the field, this impacts how their radios work. As one gets further away from a tower, the quality of the audio transmission declines. The differences between analog and digital radio signals are similar to the differences between AM radio and FM radio:

- Analog, like AM radio, has a lower sound quality the further the receiver moves away from the transmitter.
- Digital, like FM radio, has a higher sound quality at all distances from transmitter.

For these reasons many agencies outside of Lapeer County have upgraded to digital systems.

Interagency Communication

Currently, all Public Safety agencies operate on the same system. Systems in use by agencies include:

- Lapeer County 800 MHz Trunked System – This system serves approximately 900 units, 15 fire, 9 police agencies, 2 EMS, 5 medical first responders. The Lapeer County Road Commission, GLTA, Friend of the Court, Prosecutor’s Office, and various other smaller agencies;
- Michigan Public Safety Communication System (MPSCS) 800 MHz – This system is used by State Police across the state and it is also used by a number of other public safety/service agencies in Michigan counties and municipalities;
- Fire and EMS paging system – the majority of fire departments uses this across the County.

APCO 25 Standard

Since August of 1995, Public Safety Communicators have advocated for a standard that is called APCO 25. The APCO Project 25 standard was developed by the Association of Public-Safety Communications Officials for interoperable digital two-way communications products and systems. One of the key objectives is to get equipment from different manufacturers to work together. Prior to the implementation of APCO 25 an EF Johnson system needed to have EF Johnson equipment (mobiles & portables) in order to work. Alternatively, a Motorola system needed Motorola equipment and would not work on EF Johnson equipment. This caused communities to be locked into one vendor for an extended period of time and usually resulted in a systemic monopoly at the local level. With the implementation of the APCO 25 standard, equipment that complies with the standard can be used on other manufacturers’ systems. EF Johnson radios will work on a Motorola infrastructure. The standard has created pricing competition in an area that was previously sole source for many communities.

Although APCO 25 compliance was not a criteria used by the Subcommittee to make recommendations, the costs of becoming APCO 25 compliant were.

Additionally, based on an FCC ruling, current VHF and UHF equipment operating in the frequency range below 512 MHz will become completely obsolete because of frequency refarming and the move to narrowband technology, requiring new equipment. This will primarily impact fire agencies and the paging system. This includes: Almont, Arcadia Township, Attica Township, Burlington Township, Columbiaville, Deerfield Township, Dryden Township, Elba Township, Goodland Township, Hadley Township, Imlay City, Lapeer, Metamora Township, North Branch Township and Otter Lake Fire Departments as well as all Medical First Responders and Lapeer County EMS. Implementation of this FCC ruling, referred to as narrow-banding, has already begun and has a deadline of January 1, 2013.

MPSCS (Michigan Public Safety Communication System)

The recommendation of the Authority Board and the Consultant is to implement the MPSCS system. It was felt that due to the coverage already provided by the base system (97% mobile statewide) and the implementation of the MPSCS system in surrounding counties, Lapeer County would be well served by this option. Currently, Genesee, St. Clair, Saginaw, and Macomb Counties are using the MPSCS system as their means of communications for all Public Safety agencies. Tuscola, Sanilac, and Bay Counties are considering changing over to the MPSCS digital system also. With construction of additional towers they would enhance coverage in Lapeer County, creating a situation that will benefit Lapeer County.

The implementation of the MPSCS system in Lapeer County is projected to require the addition of four new antenna sites to meet the coverage specifications of the users.

Approval Plan

The following steps need to be completed for approval of the move to the MPSCS system.

- Complete a detailed analysis of potential tower locations that are needed to provide adequate coverage;

Secure agreement with MPSCS on how the systems would be merged – including the number of channels, frequency coordination, number of radios, number of consoles, maintenance costs and governance of the system;

- Finalize the end-user equipment counts;
- Preliminary system design in conjunction with MPSCS;
- Obtain County Commissioners' approval for a ballot proposal for November 2009.

The cost of this project is estimated to be approximately \$16 million. This figure is for budgetary purposes only and may decrease. Included in this cost estimate is the replacement of all Police, Fire, EMS and Medical First Responder radios in Lapeer County, and the addition of four antenna sites to provide the required coverage.

Migration Plan

If a ballot proposal of the electorate were approved, the system would not become operational until approximately 18 months from the project kick off, as the following steps would need to be taken to implement this plan:

- Bid proposal goes out. Select a vendor.
- Final system design, including representatives from Lapeer County, MPSCS, and the vendor.
- Bonding would be completed to finance the system. The bond would be repaid over a ten-year period with the proceeds from the countywide millage.
- Work would then be completed on site acquisition for erection of the necessary additional towers.
- Erection of the towers, update of existing towers, installation of necessary equipment to link Lapeer County and MPSCS, and acquisition and installation of new digital radios. User training would be conducted during this time by the MPSCS

Non-Public Safety Users

If the ballot proposal is approved, and the millage becomes the primary funding source for the radio system in Lapeer County, the current non-public safety users cannot be funded using that money. Most of the current non-public users could migrate to the MPSCS if they were to pay to convert their radios from analog to digital communications, and then pay the initiation and user fees associated with the MPSCS. Currently those agencies are the GLTA and Lapeer County Road Commission.

Impact on Public Safety Providers

All agencies in Lapeer County would have sufficient signal coverage in all areas and be able to effectively communicate with Central Dispatch and each other. That also includes fire departments and EMS agencies receiving VHF pages.

Impact on Citizens

If citizens are asked to fund this, what will be their direct benefit? What does a system like this mean to them?

In an emergency, seconds count. When someone has suffered a heart attack, oxygen deprivation to vital organs causes damage to those systems, and eventual death. When a house is on fire, the fire spreads geometrically in the time it is allowed to burn.

Often the police are the first persons on the scene of any emergency call for service. The faster and more efficiently our emergency services are able to provide meaningful information to one another and assist one another, the more effectively they can deal with these matters. At the heart of their effectiveness is the ability to quickly and clearly communicate information to one another. The proposed new radio system would provide effective radio coverage throughout the County, and allow all emergency responders to talk together efficiently over one radio system. Seconds can be saved, and ultimately minutes can be shaved off response times as responders are guided in to a scene by the most direct route from those already on the scene. EMS personnel can arrive already equipped with vital information about the nature of the injuries, or the type of equipment they should carry in to deal with the type of situation they face.

By being able to communicate effectively across one radio system with complete signal coverage, emergency responders from differing agencies can perform more effectively, saving time, property, and lives, while reducing the inherent risks to themselves.

Community Benefits

The implementation of the proposed radio system directly benefits the citizens of Lapeer County as well as the public safety agencies that serve them. The benefits to the community include:

More efficient communications between agencies: The proposed radio system would enable public safety agencies from different jurisdictions to communicate directly with each other in the field. A more efficient response by public safety agencies to emergency situations could reduce loss of life and property.

Greater radio signal coverage and strength: By providing more towers, the proposed radio system will offer greater signal coverage to outlying jurisdictions that currently experience difficulty receiving and transmitting clear radio signals. The system will also provide a stronger signal so that public safety personnel are more likely to receive and transmit radio signals inside buildings such as schools, businesses, homes and apartments.

APCO 25 compliant platform: The proposed radio system is compliant with APCO standards. APCO has established universal compatibility standards for vendors serving the communications industry. As a result, each vendor's equipment must operate with other vendors in the industry. The standard has placed buyers in a stronger bargaining position with competing vendors.

Replacement of aging and outdated equipment: As the current system ages and degrades, the risk of costly repairs is greater because outdated equipment is difficult to maintain and in some cases may not be supported. Replacing worn and outdated equipment with new technology makes the system less costly to maintain.

5. ANALYSIS OF OPTIONS

A total of four options were examined as possibilities for a future communication standard for Lapeer County public safety agencies. The three criteria (at least 97% geographic coverage with mobile radios, 97% portable in-building coverage in medium buildings in cities of Lapeer and Imlay City, and 97% portable in-building coverage in light buildings in the remainder of Lapeer County; interoperability; and funding sustainability) were used to evaluate each of these options. The option that provides the greatest enhancement at the lowest total cost is for all county agencies to migrate onto the Michigan Public Safety Communication System. Radio towers already constructed, including those located in adjacent counties, would be used for radio transmissions, although an additional three towers would need to be constructed.

The solution is compliant with federal guidelines: The proposed radio system is in compliance with federal communications guidelines that call for refarming of frequencies.

Positions agencies for mobile data technology: The proposed radio system puts in place the infrastructure to enable public safety agencies to continue to use mobile data terminals.

County wide common communications platform: The proposed radio system keeps all public safety agencies on a common communications platform. At the scene of an emergency involving police, fire, and EMS personnel, all can talk directly to one another, aiding in the efficient and effective response to the situation. Additionally, economies can be achieved in personnel training, equipment procurement and radio system maintenance.

Dedicated Millage

A dedicated countywide millage is the only viable option for raising the needed revenue, and would provide a constant source of income during the voted ten-year collection period. This would be the most stable method of funding, and the one recommended by the committee at this time.

Additional Funding Opportunities

Despite the fact that planning is being done to pay for the upgrade and operation of the system entirely from a dedicated millage, the Authority Board will be vigilant for future additional funding opportunities from other sources, such as Homeland Security Interoperability grants, etc. If they are secured in a timely manner, they could offset some of the costs of this plan, resulting in a lower millage.

State Infrastructure Control

The proposal would have us join with the MPSCS to provide complete radio coverage throughout Lapeer County. The MPSCS is controlled by a representative Board of Directors appointed at the State level. No county government agency would have direct membership on this Board. We would be relinquishing the kind of direct control we now have over what is done with our radio system, and how costs are assigned to individuals. Right now, the State is fairly competitive in the arena of communications service. If State budget problems continue to grow, and fees and costs must be raised to offset existing subsidies, we could face increasing costs to participate. Again, we know that the costs of not going on the system will also increase costs locally. We feel that this is a calculated risk shared by many across the State who have also joined MPSCS that is worth taking to accomplish our goals in communications service.

Opportunities with Technology

Just like with any other technology, there are many additional facets to this radio system that can be added to enhance its capability, but that are not funded in this proposal. The first of these issues will likely be wireless data transmittal. Many police vehicles are equipped with computers capable of displaying mug-shots, driving

records of persons on the street, and providing report-writing services. The utility of these in-vehicle computing platforms is tremendously enhanced by allowing them to communicate directly/remotely with some central information repository or network server. This can be done over the radio network with the proper application software and necessary hardware.

Other opportunities include:

- Automatic Vehicle Locators that continuously communicate over the radio to the dispatch centers the location of the various emergency vehicles;
- Telemetry units of various types to communicate vehicle operation, activation of various forms of equipment in a vehicle, and vehicle crashes;

Finally, as is the case with any technology, new technology might well be on the horizon that would make this plan obsolete. We need to build a reasonable financial base to pay not only for the immediate needs, but also for the obviously required replacement parts of the future - both hardware and software that may be dictated by the vendors of whatever might be purchased.

APPENDIX A

GLOSSARY OF TERMS

800 MHz (Megahertz): A band of radio frequencies in the 800 Megahertz range that is dedicated to high frequency radio communication. At this time police radios, cellular telephones, and television stations on channels 69 through 83 have been located in this frequency band by the Federal Communications Commission.

Analog Communications: A method of communication that broadcasts voice transmissions over a frequency modulated radio signal. As users move further from the radio transmission site (tower), the signal weakens, and the radio signal that is received by the user becomes more difficult to hear, as it is distorted by static and other interference. Analog radio signals require a larger bandwidth than digital signals for interference-free communication.

ALI (Automatic Location Information) The information that is directed to a PSAP when a subscriber dials 9-1-1 over their landline telephone that contains the location (address) information where the 9-1-1 call originates.

ANI (Automatic Number Information) The information that is directed to a PSAP when a subscriber dials 9-1-1 over their landline telephone that contains the telephone number where the 9-1-1 call originates.

APCO (Association of Public-Safety Communications Officials): An organization formed to bring together all Public Safety Communications persons to discuss matters of mutual interest, and to promulgate standards for the Public Safety Communications industry.

APCO 25: A standard proposed by APCO to provide for the interoperability of digital radio equipment from differing manufacturers. Thus, a radio built by Motorola, and one built by EF Johnson (or any other manufacturer claiming that their equipment was APCO 25 compliant) would be required to communicate directly with another if they were on the same frequency. It is a similar situation to a standard that would make an Apple computer and an IBM computer compatible with one another.

CDPD (Cellular Digital Packet Data): A format for transmitting digital data over cellular phone circuits. This type of digital data transmission will soon become obsolete, and no longer will be used.

CEB (Central Electronics Bank): That part of the 800 MHz radio system comprised of a number of printed circuit boards that functions as the central processor for the system consoles, and the interface to the 800 MHz radio system.

dB (decibel) density building: dB density building is a measure used to describe the thickness (or opacity to radio signals) of a building's walls. The larger the dB number, the greater the thickness/density. The measure is used to determine the radio signal strength needed to penetrate the building. Generally, a 15 dB density building is medium sized commercial building, and a 6 dB density building is a residential building.

Digital Communications: A method of communication that broadcasts voice transmissions over a digital radio signal. As users move further from the radio transmission site (tower), the signal remains the same, due to error correction coding that eliminates static and other noise, until it is totally lost. There is no distortion of the weaker signal further from the tower. It is either on or off. Digital radio signals require a narrower bandwidth than analog signals for interference-free communication. Thus, more licenses can be granted in the same frequency range than for analog. With the demand for increasing radio licenses, the FCC is requiring users to move to digital signal broadcasting to make better use of the finite frequency range for radio signals. Digital signaling also provides for additional features that are not readily available with an analog system, such as data transmission.

E 911 (Enhanced 911): The feature on wireline telephones in Michigan that allows Public Safety Answering Points equipped with the proper equipment to read the subscriber name and address for telephones that have dialed 9-1-1 to request emergency assistance.

FCC (Federal Communications Commission): The federal commission that controls communications signals in the United States. Licenses to operate radio stations are granted by the FCC.

IC (Incident Commander): The person at the scene of an emergency involving multiple agencies that is in charge of the entire operation. There is specific training that many public safety agencies require for their personnel on how to operate effectively as an Incident Commander at the scene of a large-scale emergency.

Interoperability: Interoperable devices are ones that are integrated and are able to operate together. Interoperability is a concept that has come to the forefront since the terrorist attacks at the World Trade Center dramatically pointed out the need for many different emergency services to be able to work together at the scene of an emergency, and to be able to communicate effectively with one another.

MPSCS (Michigan Public Safety Communications System): A statewide communications system that was begun by the Michigan State Police to provide 800 MHz radio communications for public safety agencies in the State of Michigan. Construction of the system began in 1995, and was completed in 2001. The State of Michigan Department of Information Technology now runs the MPSCS. It provides communication service to the Michigan State Police, and other public safety agencies in counties throughout the state. Currently, our neighbors in Genesee County, St. Clair County and Macomb County are users of the MPSCS.

PSAP (Public Safety Answering Point): An office, usually at a police department or central dispatch center, where the telephone company directs all 9-1-1 calls for a particular geographic area. The PSAP is equipped with a small video screen that displays the subscriber name and address associated with the phone number that was used to dial 9-1-1. As PSAPs become equipped with the technology necessary, they will also be able to determine the physical location (latitude and longitude) where a cellular 9-1-1 phone call originated.

Simulcast: A feature of the 800 MHz trunked radio system that allows a radio signal to be simultaneously broadcast from multiple radio towers. The radios on the system then receive the strongest signal that reaches them without creating distortion from the other like signals being broadcast from other towers on the same system. This resolves the problem of the limited range of a single radio tower (transmitter).

Trunked: A feature of the 800 MHz radio system that uses multiple radio frequencies controlled by a computer to select a different radio frequency for use every time a radio on the system is used to transmit. This allows multiple radios to talk at the same time on the same system on different channels. It also allows users to switch channels so differing agencies can all communicate on one channel.

VoIP (Voice over Internet Protocol): This is a service now being offered by Internet service providers that provides telephone service over the same cable used for cable television and high-speed Internet access. Not all VoIP providers route 9-1-1 calls over traditional 9-1-1 telephone circuits to the proper PSAP. Not all VoIP providers send ANI and ALI to the PSAP receiving the 9-1-1 call that originated on their circuits. There is no governing legislation at this time that requires VoIP providers to impose a surcharge to provide these services, either, like there is with telephone companies that utilize traditional telephone lines.

APPENDIX B SYSTEM COST ESTIMATE

The Lapeer County system will consist of 7 ASTRO 25 sites, 14 channel IP simulcast cell linked to the MPSCS ASTRO 25 controller. 4 sites are new 'green' tower locations. The sites within Lapeer County will be linked via a new included microwave network. Also included are 3 MCC7500 dispatch console positions, 5 Plant 911 phone equipment positions, dispatch furniture, a 10 site paging infrastructure, 586 subscriber radios (mobiles & portables), a High Performance Data (HPD) at 3 sites and required master site equipment with 54 modems.

This budgetary proposal also includes all services including, engineering, CCSI staging, documentation, freight, system integration, program management, warranty, training and installation.

ASTRO 25 SIMULCAST SYSTEM – 7 RF Sites, Microwave, Shelters	\$11,030,000
3 MCC7500 Dispatch Console positions, 5 Plant 911 positions, 5 Watson Dispatch Furniture positions, Nice Call Logging System	\$900,000
10 SITE PAGING SYSTEM	\$ 575,000
SUBSCRIBER ESTIMATE BASED UPON 586 RADIOS AT \$3000 PER UNIT	\$1,758,000
<i>PUBLIC SERVICE</i>	<i>\$1500-\$2200/each</i>
<i>MID TIER PUBLIC SAFETY</i>	<i>\$2800-\$3500/each</i>
<i>HIGH TIER PUBLIC SAFETY</i>	<i>\$3200-3800/each</i>
HIGH PERFORMANCE DATA SYSTEM (HPD)	\$1,788,200
54 HPD Modems w/GPS (\$1,700 each)	91,800
TOTAL SYSTEM ESTIMATE	\$16,143,000

This quote represents a budgetary estimate and is for informational purposes only. It is not valid for securing a Customer Purchase Agreement without first establishing, a Statement of Work, Acceptance Test Plan, and concurrence from all parties. This will require additional meetings and site walks. A firm cost proposal can only be given when site visits have been conducted and preliminary field microwave path studies have been completed.

System Budgetary Pricing

Motorola has worked closely with Lapeer County representatives to identify key requirements of a new communications system for public safety use. This budgetary estimate has been developed for a system that meets those requirements, and to assist Lapeer County officials in assessing the funding required to implement the system. Some assumptions have been made in regard to system design, subscriber quantities and feature sets. Upon approval of project funding, Motorola will work closely with representatives of Lapeer County and the Michigan Public Safety Communications System (MPSCS) to complete a final system design with firm pricing.

System Description

Motorola is pleased to present the following system description for Lapeer County. This system, and the associated digital technology behind it, has been designed specifically for Public Safety users like the various Fire Departments, Police Departments, and other service agencies in Lapeer County. This system will provide an extremely reliable, easy to use, integrated radio communications network that supports the following key features:

- Direct Countywide Unit-to-Unit Inter-agency Communications

- Direct Countywide Unit-to-Unit Intra-agency Communications
- Direct State Unit to County Unit Inter-agency Communications
- Easy to use, frequency efficient simulcast coverage

- Increased coverage beyond the Lapeer County borders – subscribers can communicate throughout the entire State of Michigan

Motorola is proposing a complete solution consisting of a number of major system elements, including the system's integration into the MPSCS. In summary, the major elements that make up our total solution for Lapeer County includes:

- ❖ An 800 MHz Simulcast system design that provides 97% reliability coverage throughout the County.
- ❖ System and Site Management and alarm monitoring terminals.
- ❖ Large selection of digital mobile and portable radios and fixed control stations.

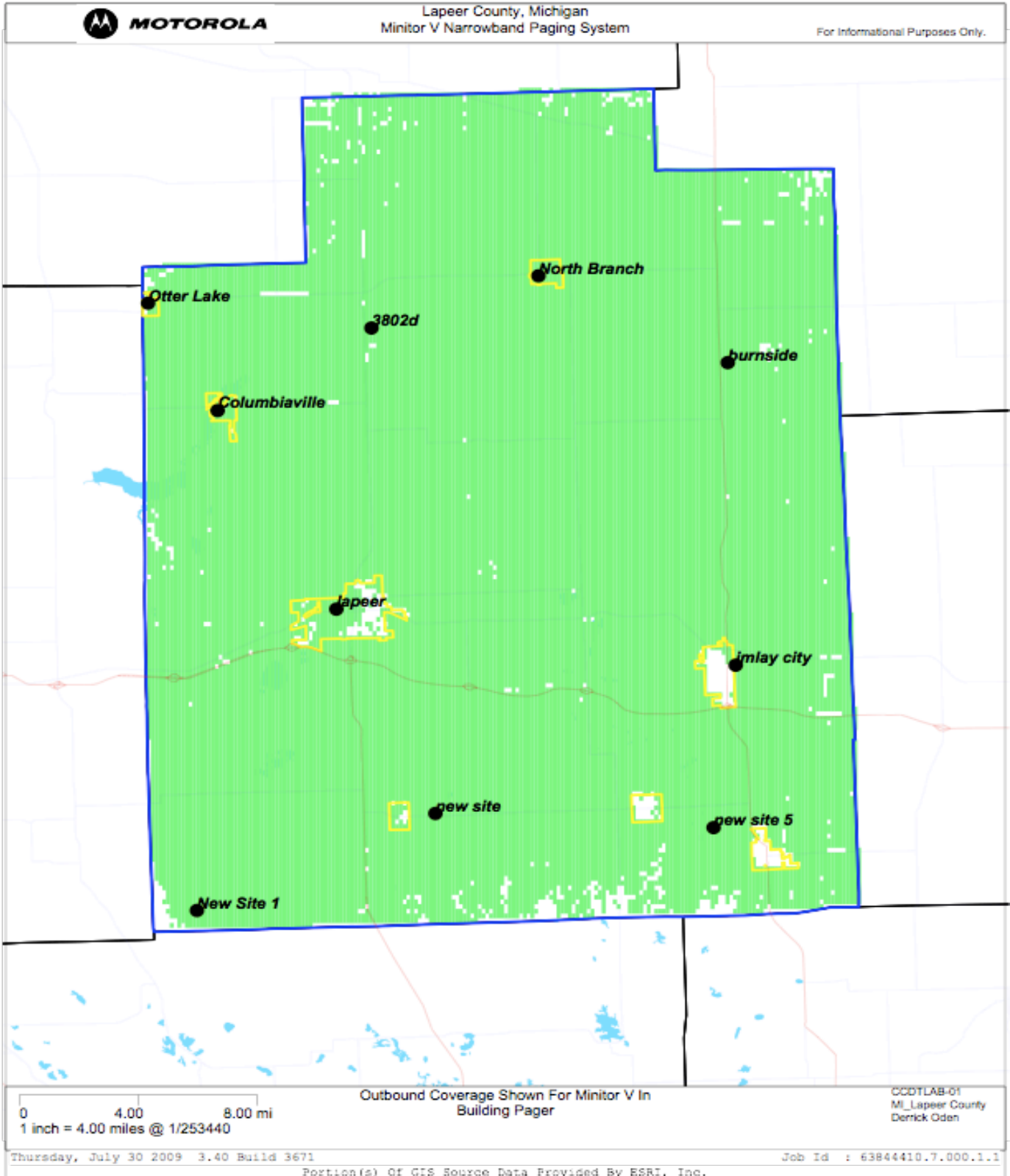
The system, as configured, will allow for radio users to operate in the County or communicate anywhere in the State of Michigan while maintaining communications with dispatch and other members of their talk group.

System Overview

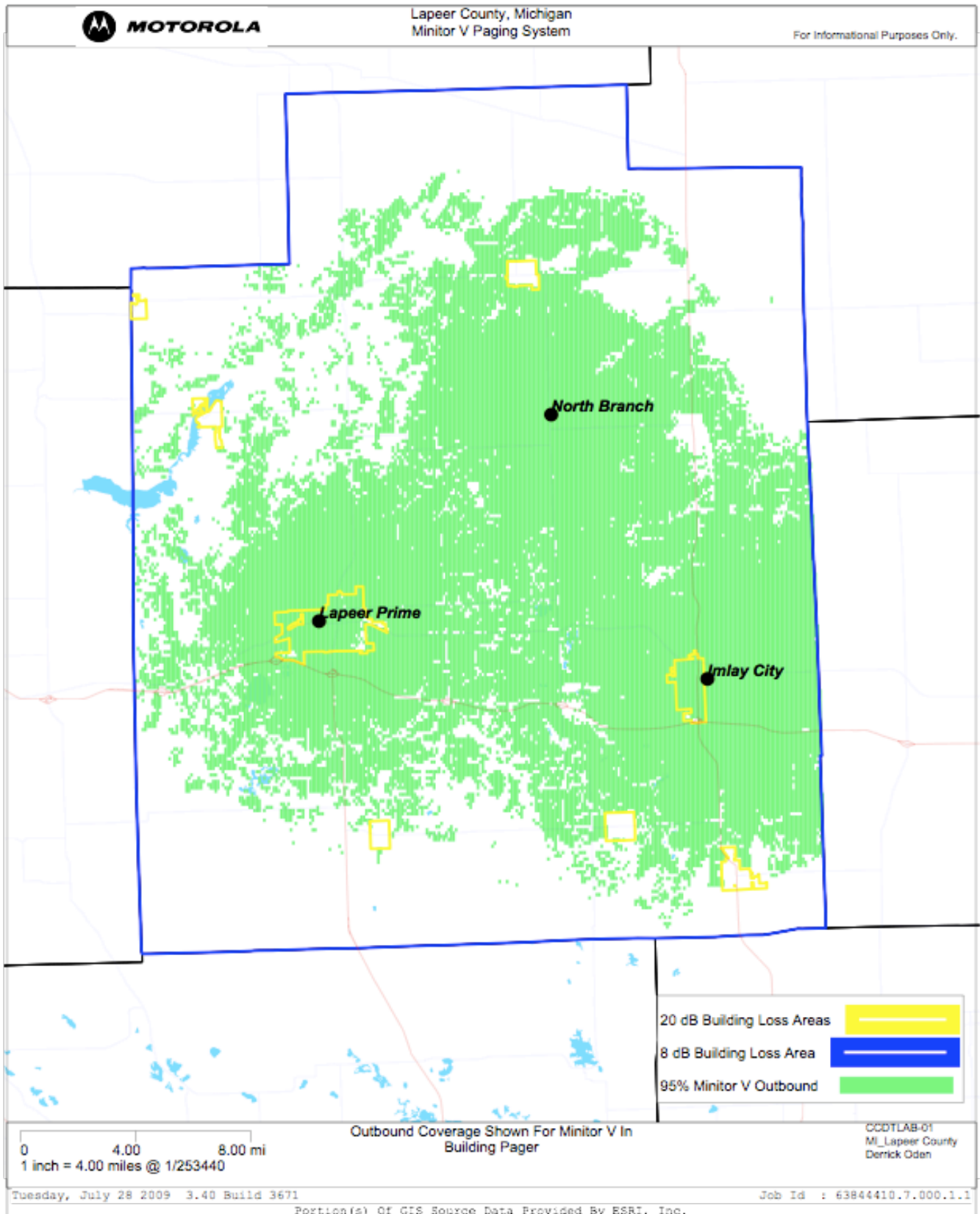
Lapeer County's planned migration to 800 MHz trunked digital communications will commence upon voter approval with the construction of a seven-site simulcast radio system. The new Motorola radio system will provide countywide communications for approximately 1000 mobile and portable radios, and continue to support MPSCS traffic load for Lapeer County. The 800 MHz trunked system will replace Lapeer County's present analog trunked radio system, providing interoperability between State, County, City and Township Public Safety users. With its inclusion into the MPSCS 800 MHz system, Lapeer County will be able to provide support of Mutual Aid operation on the TAC-1 NPSPAC Interoperability channel. The Lapeer County sites will be equipped with site alarms that will be tied into the MPSCS Alarm Monitoring Subsystem centrally monitored at the NCC site.

The four new system sites will be constructed with a tower, shelter and backup power generation. The tower, shelter, microwave and power systems from the MPSCS 3802 site will be reused in this design.

APPENDIX C Proposed Narrowband Paging System

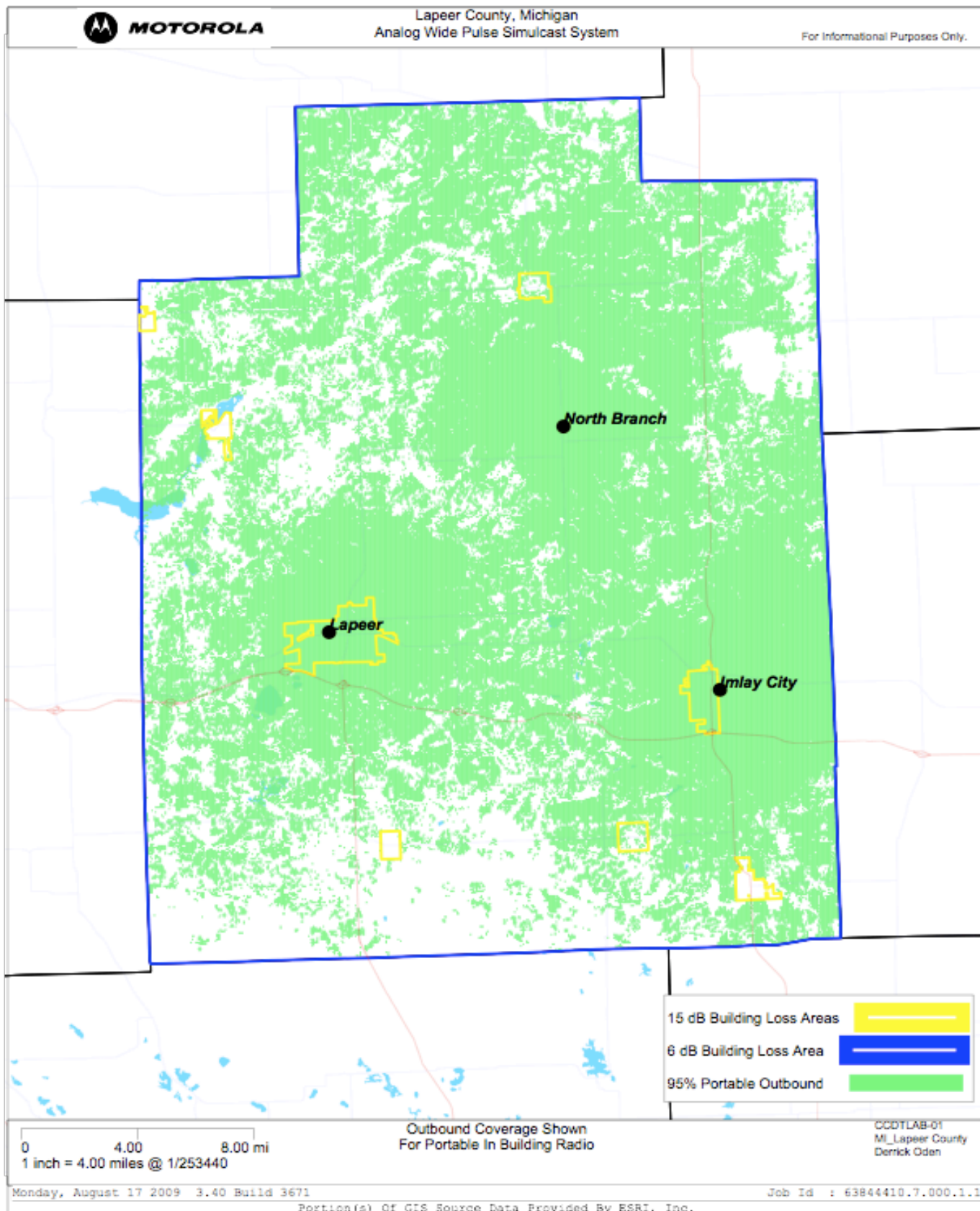


APPENDIX D Current In-building Paging Coverage

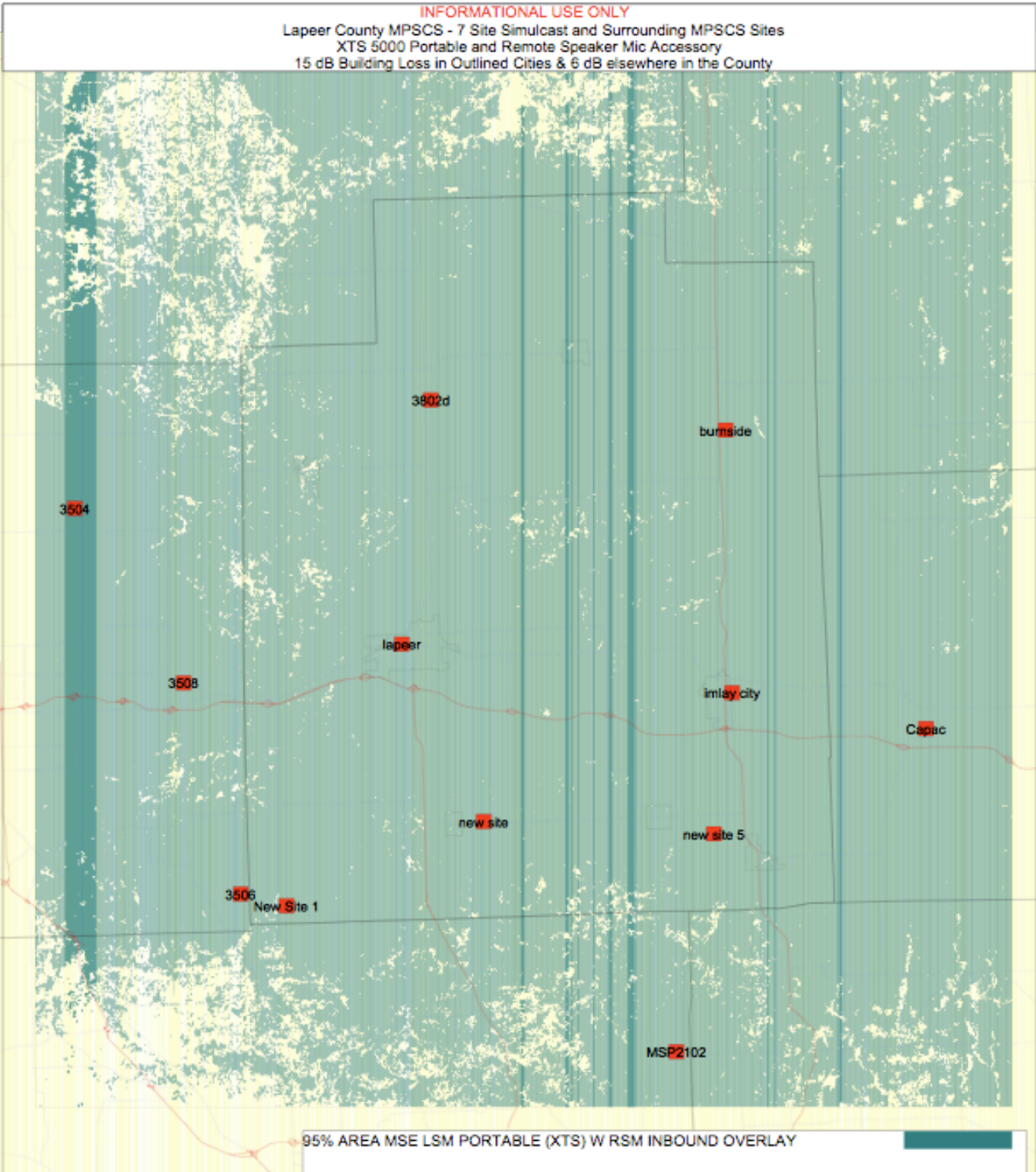


APPENDIX E

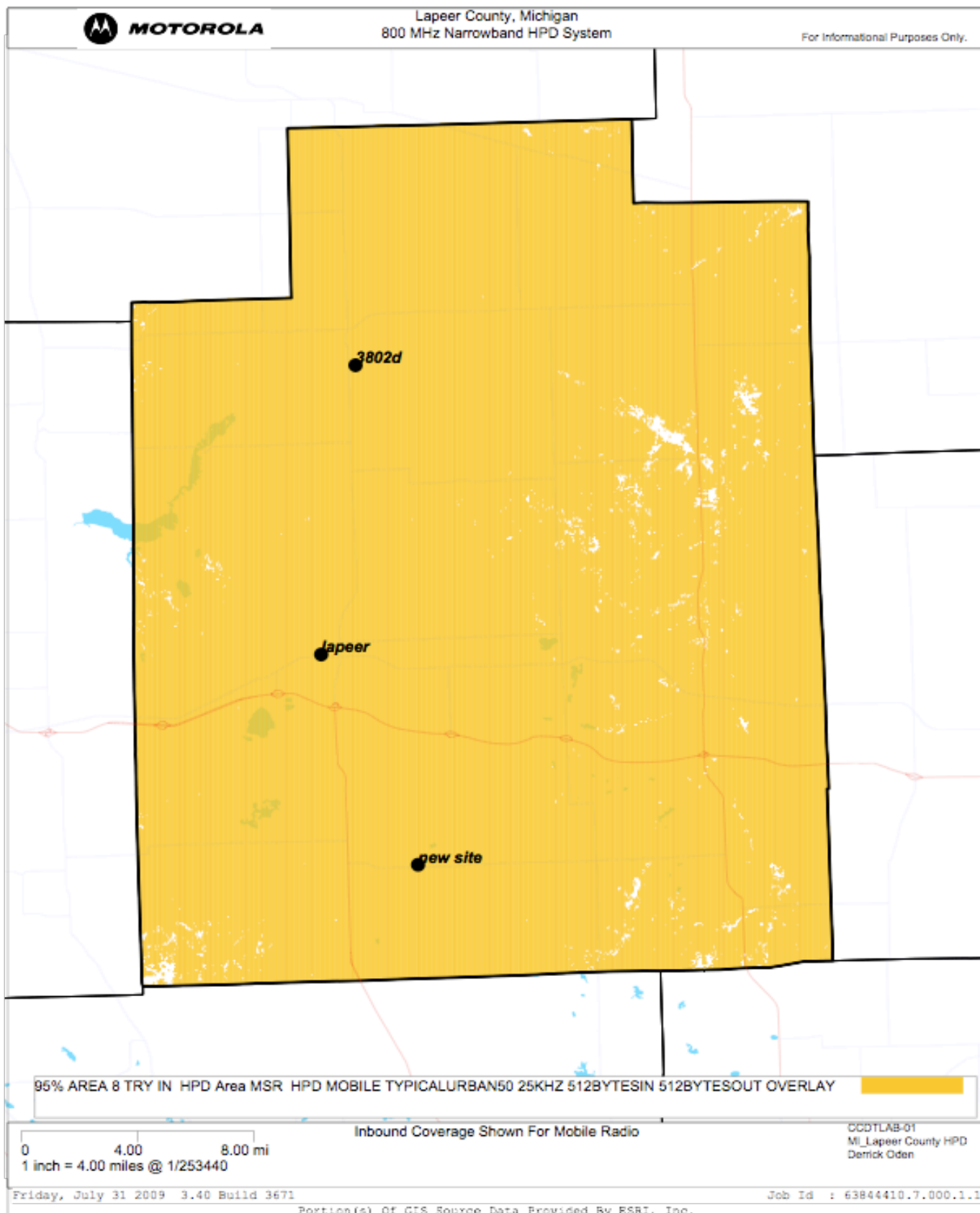
Current In-building Portable Radio Coverage



APPENDIX F Proposed Portable Radio Coverage



APPENDIX G Proposed Data System (MDT) Coverage



APPENDIX H Talking Points

- A. Throughout Michigan, all 83 counties have recognized the economic and operational benefits to a consolidated emergency dispatch for public safety response.
- B. Last year Lapeer County Central Dispatch processed over 112,000 calls for assistance in Lapeer County requesting Police, Fire or EMS information. Those calls for service range from urgent Medical Calls, House Fires, and Murders to informational question.
- C. We are a single point of contact for all public safety responders; most agencies forward their phones to Central Dispatch after 5:00 PM in order to put more officers on the road. Central Dispatch is able to coordinate radio traffic for all responders cutting down on confusion at emergency scenes.
- D. 9-1-1 is the universally recognized number to be used when reporting emergencies to police, fire and EMS. We have the Enhanced 9-1-1, which provides the caller's name, address, and call back phone number. This is especially helpful for our elderly citizens and children. When callers are unable to speak, our dispatchers are able to send assistance due to the enhanced 9-1-1.
- E. Much like the TV switch-over recently, the analog vs. digital system is antiquated, many parts are no longer made, and we are surviving on used parts when they can be found. System failures are becoming more frequent.
- F. Analog systems are no longer built and repair parts are difficult to come by as well as becoming costly to maintain.
- G. The current radio and paging system has been in use 24 hours a day, 7 days a week, and 365 days a year since its inception 13 years ago.
- H. Six towers will be utilized to correct coverage problems in the south end of the county – Dryden, Metamora and Hadley Townships, we currently operate on three towers county-wide.
- I. There are over 800 radios on the current system; those agencies include 9 Police agencies, 15 Fire agencies, 4 EMS agencies, 6 medical first responder teams, Emergency Management, plus the Road Commission, and GLTA.
- J. The proposed radio system would be interoperable with almost all surrounding counties and with all other agencies on the Michigan Public Service Commission System (MPSCS). This would include all State agencies, MSP, MDOC, MSPEMD, MDOT, etc... and even the National Guard.
- K. By going to the MPSCS, we would be eligible for grants from the federal and state governments due to being interoperable with other agencies within and outside of the State.
- L. By being interoperable on the MPSCS system, if a public safety responder has to travel outside of Lapeer County on a prisoner transfer, training, mutual aid assist (police, fire, EMS), or patient transfer, they would be able to talk directly to a local jurisdiction that is on the MPSCS or back to Lapeer County Central from wherever they are in the State.

- M. There is no redundant system, Lapeer County Central is the only system, Sheriff Department, Lapeer City, Imlay City, Metamora, Dryden, none have their own radio system.
- N. The original millage 13 years ago was able to be retired early, we will try to do the same with the new millage.
- O. During the most recent drowning on Lake Nepessing dive teams from Oakland and Saginaw Counties were called into assist the Lapeer County Sheriff Department dive team. The Lapeer County Sheriff Department had to supply radios to each of the dive teams because our radios were not interoperable with the other county's radios. With the new 800 MHz digital radios, all agencies would have been able to use their own radios. This same issue occurs with fire departments that either has to come into Lapeer County or Lapeer County fire departments go outside of our county to assist other agencies.

APPENDIX I
E 9-1-1 CENTRAL DISPATCH EQUIPMENT PROPOSITION

Shall the County of Lapeer, Michigan, be authorized to levy upon the taxable value of all property subject to ad valorem taxation, up to three-quarters (.75) of one mill (75 cents for each \$1,000 of taxable value), for a period of up to ten (10) years, 2009 through 2018 inclusive, for the purpose of replacing outdated analog radio equipment for Fire, Police and Emergency Medical Service with updated digital radio equipment and other equipment necessary for the 9-1-1 Central Dispatch System to effectively provide and ensure twenty-four hour public safety communications service for the citizens, communities, and public safety responders of Lapeer County?

This millage would raise an estimated \$2,345,868.86 first year collection, if the millage is approved and levied in the first year of the levy. To the extent required by law, a small portion of the total revenues from the tax levy (estimated to be approximately .4506% in the first year of the levy) will be captured within the districts of and disbursed to the following authorities: Village of Clifford Downtown Development Authority, Village of Columbiaville Downtown Development Authority, Village of Dryden Downtown Development Authority.

Yes _____
No _____