

DIRECTORS' MEETING
SEPTEMBER 15, 2014
555 S. 10TH STREET
BILL LUXFORD STUDIO
2:00 P.M.

I. CITY CLERK

II. MAYOR

1. NEWS ADVISORY. Mayor Beutler will hold a news conference Tuesday, September 9th, 11:00 a.m., at 555 S. 10th Street, in the Mayor's conference room to discuss improvements planned to make a Haymarket alley more pedestrian friendly.
2. NEWS RELEASE. Gallery alley to become safe and inviting pedestrian passage.
3. Fiscal Impact Statement, Public Works & Utilities, August 29, 2014.
4. NEWS RELEASE. NWU Sports Network announces Nebraska Wesleyan football telecast schedule.
5. NEWS RELEASE. Public invited to attend meeting and take survey on Bike Share Program.

III. DIRECTORS CORRESPONDENCE

HEALTH DEPARTMENT

1. NEWS RELEASE. Home visitation program achieves national accreditation.
2. Lincoln - Lancaster County Health Department August 2014 Department Report.
3. Lincoln - Lancaster County Health Department meeting minutes of August 12, 2014.

PLANNING DEPARTMENT

1. Administrative approvals by the Planning Director from September 2, 2014 through September 8, 2014.

PUBLIC SAFETY

1. Public Safety Radio System Assessment Report.
2. Update to Station Optimization Study, Lincoln Fire & Rescue.
3. Capital Improvement Program, Public Safety: Fire & Rescue; Police. (On file in City Council Office for review)
4. Lincoln Fire & Rescue/Lincoln Police Department: Joint Use Facility Study.
5. Station Optimization Study, Lincoln Fire & Rescue. (On file in City Council Office for review)

PUBLIC WORKS & UTILITIES/ENGINEERING

1. Randy Hoskins replying to question raised at the pre-council regarding right turn lanes.

URBAN DEVELOPMENT

1. Memorandum from David Landis, Director of Urban Development, regarding 27th and R Street availability of City-owned property.
2. David Landis, Director of Urban Development, replying to Councilman Camp on the recent fiscal impact statement. Councilman Camp's email attached.

IV. COUNCIL MEMBERS

JON CAMP

1. InterLinc correspondence from Ms. Anne regarding panhandling in the City of Lincoln.
2. Wall Street Journal article on Pension Reform.
3. Reply from Craig Aldridge to Councilman Camp on fence placement on Old Cheney Road and grading issue. Correspondence regarding this issue attached.
 - a) Request from Councilman Camp to Craig Aldridge for communication with Mr. Taylor.

V. CITIZEN CORRESPONDENCE

1. Becky Cole writing with suggestions on new, and old, fire stations.

OFFICE OF THE MAYOR

555 South 10th Street, Lincoln, NE 68508, 402-441-7511

DATE: September 8, 2014

FOR MORE INFORMATION: Diane Gonzolas, Citizen Information Center, 402-441-7831

Mayor Chris Beutler will discuss improvements planned to make a Haymarket alley more pedestrian-friendly at a news conference at **11 a.m. Tuesday, September 9 in the Mayor's Conference Room, County-City Building, 555 S. 10th Street.** The alley is between "O" and "P" streets, just east of 7th Street between the Burkholder Project and the Creamery Building.

OFFICE OF THE MAYOR

555 South 10th Street, Lincoln, NE 68508, 402-441-7511

FOR IMMEDIATE RELEASE: September 9, 2014

FOR MORE INFORMATION: Diane Gonzolas, Citizen Information Center, 402-441-7831
Dave Landis, Urban Development, 402-441-7126

**GALLERY ALLEY TO BECOME
SAFE AND INVITING PEDESTRIAN PASSAGE**

Mayor Chris Beutler today said improvements to a Haymarket alley will make it a safer and more inviting pedestrian connection between new developments south of “O” Street and the Haymarket and West Haymarket areas. What is now called Gallery Alley runs from “O” to “P” streets just east of 7th Street. The south end is the City’s new Lumberworks Garage, and the north end is between the Burkholder Project and the Creamery Building.

“With a number of economic development projects under way or being contemplated, it is imperative that the City ensure that infrastructure connects the growing south area with the rest of the Haymarket,” Mayor Beutler said. “The alley has long been used by pedestrians and is now a major connection between the new Lumberworks garage and the Haymarket. With more growth expected south of “O” Street, we anticipate the number of pedestrians using the alley to increase. Unfortunately, Gallery Alley is not ready for increased traffic.”

The Mayor said problems in the alley include a lack of adequate lighting as well as uneven pavement and potholes where water and ice accumulate. “The time has come to make Gallery Alley safe, dry, walkable and well lit,” Beutler said. “Beyond that, the alley can become, not just a passageway, but a welcoming entryway people will want to use.”

The City has already begun improving the north half of the alley. Crews are resetting and stabilizing the alley bricks to create a smoother and safer walking surface with enhanced drainage. The existing brick pavers are being re-used to maintain its historic appearance. The alley's stormwater system will be upgraded with a permeable system to allow storm water runoff to filter through the ground into underground drains, instead of creating puddles.

Lighting will be installed on the underside of the Harris Overpass and on the Burkholder and Creamery buildings. Lighting will also cross above the alley between the two buildings. A new privately-funded mural will be painted on the Creamery Building to complement the existing art on the Burkholder building.

Work on the concrete south half of the alley, including pavement and lighting improvements, will be timed to fit with the anticipated redevelopment of the building at 700 “O” Street.

- more -

Improvements also are being made to make the Haymarket more walkable. Repairs have already been made to the “P” Street sidewalk north of the alley. At 7th and “Q” streets, curbs will be extended to create a shorter pedestrian crossing, and a four-way stop will also be installed.

The total budget for the project is about \$800,000, which includes \$190,000 in private contributions and \$200,000 in street construction dollars. About \$316,000 in tax-increment financing will be used mainly for the lighting portion of the project. The budget includes a \$50,000 endowment for alley maintenance.

FISCAL IMPACT STATEMENT

DEPARTMENT/DIVISION: Public Works & Utilities

DATE: August 29, 2014

NEED: The Streets Division of the Public Works & Utilities Department would like to use \$235,000 from unspent money in the Street Construction Operating budget for F.Y. 13/14 for the following items:

- 1) An automated brine making/blending machine (\$75,000);
- 2) a calcium chloride brine vessel, industrial mixer, process pump and chiller (\$11,000);
- 3) two (2) additional slide-in spray tank systems (\$29,000); and
- 4) six (6) 13,000 gallon cone bottom tanks for additional brine storage (\$120,000).

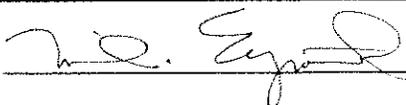
To meet our deicing goals for snow removal and be able to maximize our effectiveness and improve our efficiency we must advance our brine-making capability and distribution system to the streets. This updated/newer equipment will assure our ability to make optimized brine blends and effectively target specific winter events across the full range of temperatures. We must be able to deliver this brine to our street system in one day or less.

FUTURE IMPACT: Ongoing Limited Projected Completion Date _____

REVENUES GENERATED	LEGISLATIVE CHANGES		
	City	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	County	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	State	Yes <input type="checkbox"/>	No <input type="checkbox"/>

IMPACT	Current Fiscal Year	Next Fiscal Year Annualized
PERSONNEL (full time equivalents)		
PERSONNEL (cost) business unit: object code description		
SUPPLIES business unit: object code description		
OTHER SERVICES & CHARGES business unit: object code description		
EQUIPMENT business unit: object code description 79140.6076	\$235,000.00	
TOTAL EXPENDITURES		

SOURCE OF REVENUES: Unexpended street construction funds appropriated in budget resolution.

DIRECTOR  DATE 9-4-14

FINANCE DEPARTMENT COMMENTS	Availability of Appropriations: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> BUDGET OFFICER <u>Steve Hubbs</u> <hr/> PURCHASING AGENT _____
FINANCE DIRECTOR <u>Steve Hubbs</u>	DATE <u>9/4/14</u>

APPROVED: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	MAYOR <u>[Signature]</u>	DATE <u>9/9/14</u>
---	--------------------------	--------------------

WHEN TO USE FISCAL IMPACT STATEMENT

1. Requesting transfer of operating appropriations.
2. Requesting increase in personnel (full time equivalents) appropriations.
3. Requesting transfer of capital improvement appropriations.
4. Requesting operational change not authorized during the budget process.
5. Requesting appropriations based on receipt of additional funds from outside sources.
6. Requesting use of Contingency funds.

HOW TO USE FISCAL IMPACT STATEMENT

NEED: There should be a detailed explanation of why a change to the previously approved budget is necessary. If the change will have any impact beyond the current fiscal year, it should also be noted.

FUTURE IMPACT: One of the boxes should be checked. An example of an item with ongoing impact would be a request for additional fte authorization that will also be requested in upcoming budgets. This would necessitate filling out the "Next Fiscal Year Annualized" column. An example of an item with limited impact would be asking for authorization to use salary savings for the one time purchase of equipment. If "Projected Completion Date" applies, please fill in.

REVENUES GENERATED: Please note if the request will affect current and future revenues.

LEGISLATIVE CHANGES: These boxes should be marked yes or no. Some of the actions this form is used for (transfer of capital improvement appropriations, Contingency Funds) require a City Council ordinance.

PERSONNEL (full time equivalents): Please note the number of fte's the request involves, if applicable.

PERSONNEL (cost), SUPPLIES, OTHER SERVICES AND CHARGES, EQUIPMENT: All entries in these boxes must have the business unit, object code, and object code description along with the dollar amount. Negative amounts must be indicated by brackets.

TOTAL EXPENDITURES: This box should contain the sum of the dollar amounts in the various expenditure categories.

SOURCE OF REVENUES: This box should contain the name of the fund the action is required for.

OFFICE OF THE MAYOR

Citizen Information Center, 555 South 10th Street, Lincoln, NE 68508, 402-441-6688

FOR IMMEDIATE RELEASE: September 8, 2014

FOR MORE INFORMATION: Jamie Wenz, NWU Sports Network/5 CITY-TV,
402-441-6688

NWU SPORTS NETWORK ANNOUNCES
NEBRASKA WESLEYAN FOOTBALL TELECAST SCHEDULE

For the eleventh year, the NWU Sports Network (formerly 21 SPORTS) will carry all Nebraska Wesleyan University (NWU) Prairie Wolves home football games this season and the October 5 game at Doane on a tape-delayed basis. The NWU Sports Network is part of the educational access channel on Time Warner Cable channel 80. NWU games also will be available **LIVE** online at www.nwusports.com.

The NWU Sports Network will carry the following NWU football games:

- Saturday, September 13 vs. Morningside College
- Saturday, September 27 vs. Northwestern College
- Saturday, October 4 at Doane College
- Saturday, October 11 vs. Concordia University
- Saturday, November 1 vs. Dakota Wesleyan University

The game at Doane will be the 100th meeting between the two in-state rivals. Doane leads the series 47-46-6.

“For 11 years, we’ve been a part of Prairie Wolf football by providing coverage that Wesleyan fans truly appreciate and have come to expect,” said Jamie Wenz, NWU Sports Network Station Manager. “We anticipate another exciting season of NWU football, and we once again look forward to working with the great people at Nebraska Wesleyan to help promote the school locally and throughout the region online.”

All games kickoff at 1 p.m. Viewing times can be found at lincoln.ne.gov by clicking on the 5 CITY-TV logo. NWU games will air at 8 p.m. Saturdays on Educational Access channel (Time Warner channel 80), as well as various other times throughout the week. Games also can be viewed through video-on-demand this year on the NWU Sports Network YouTube channel at www.youtube.com/user/nwusportsnetwork.

Jeff Motz will again call the play-by-play with Lucas Mohrman providing analysis.

LINCOLN/LANCASTER COUNTY PLANNING DEPARTMENT
555 South 10th Street, Suite 213, Lincoln, NE 68508, 402-441-7491

FOR IMMEDIATE RELEASE: September 10, 2014

FOR MORE INFORMATION: Kellee Van Bruggen, Planning Department, 402-441-6363

**PUBLIC INVITED TO ATTEND MEETING AND TAKE SURVEY
ON BIKE SHARE PROGRAM**

The public is invited to share their thoughts about a potential city bike share system in two ways:

- Attend a meeting from 5 to 6 p.m. Thursday, September 18 in the City Council Chambers, 555 S. 10th Street. Kären Haley, Executive Director at Indianapolis Cultural Trail, will present background information on bike share programs and answer questions.
- Take a survey and view an interactive map at lincoln.ne.gov (keyword: bike share survey).

A bike share system allows individuals to borrow shared bicycles on a short-term basis. The program could allow people to borrow bikes from one point and return them to another. Over the past six months, City officials, UNL students and administration, bike enthusiasts and other community leaders have discussed how a bike share system could benefit Lincoln.

“It’s exciting to see bikeshare expand around the country as a healthy and affordable transportation option,” said Haley. “In my experience with Pacers Bikeshare program, the people using the bikes are both experienced and novice riders and use the system for transportation, exercise and recreation.”

Kellee Van Bruggen, Lincoln-Lancaster County Planning Department, said bike share programs are growing in popularity, with systems opening in most of the nation’s medium and large cities, including Omaha. She said many cities view bike share systems as urban amenities that play a role in attracting young professionals and improving tourist access to attractions. She said they also can strengthen a city’s public transportation system and encourage healthy lifestyles through active commuting.

For more information, contact Van Bruggen at 402-441-6363 or kvanbruggen@lincoln.ne.gov.

- 30 -

ACCOMMODATION NOTICE

The City of Lincoln complies with Title VI of the Civil Rights Act of 1964 and Section 504 of the Rehabilitation Act of 1973 guidelines. Ensuring the public’s access to and participating in public meetings is a priority for the City of Lincoln. In the event you are in need of a reasonable accommodation in order to attend or participate in a public meeting conducted by the City of Lincoln, please contact the Director of Equity and Diversity, Lincoln Commission on Human Rights, at 402 441-7624 as soon as possible before the scheduled meeting date in order to make your request.

LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT
3140 “N” St., Lincoln, NE 68510, 402-441-8000

FOR IMMEDIATE RELEASE: September 9, 2014

FOR MORE INFORMATION: Kodi Bonesteel, Health Department, 402-441-6297
Andrea Haberman, Health Department, 402-441-8054

**HOME VISITATION PROGRAM ACHIEVES NATIONAL
ACCREDITATION**

Prevent Child Abuse America (PCA America) announced this week that the Lincoln-Lancaster County Health Department (LLCHD) and CEDARS Youth Services achieved accreditation in the Healthy Families America (HFA) model of home visitation. The program is aimed at reducing the risks for child abuse and neglect in Lancaster County. The LLCHD-CEDARS program is the first of its kind to achieve accreditation in Nebraska.

HFA is a signature program of PCA America with more than 30 years of research in the areas of maternal and child health, child development and school readiness. The program also works to reduce child maltreatment, family violence, juvenile delinquency and crime. The accreditation process involves an in-depth examination of the program’s operation, as well as the quality of the visits made by HFA home visitors.

“Our home visitors were recognized as ‘outstanding’ in their level of experience, knowledge of community resources and ability to build trust with the families we are privileged to serve,” said Kodi Bonesteel, Program Manager of the home visitation program.

Home visitors receive extensive training to help new parents care for a baby and cope with stress. They also work to ensure the baby is receiving the nutrition needed and to promote healthy child development. The program is based on 12 critical elements representing the most current knowledge available about implementing successful home visitation programs. These include offering services before or at birth, using a standardized assessment tool to identify families who are most in need of services and the use of positive outreach efforts to build family trust.

More information on LLCHD is available at health.lincoln.ne.gov.

DEPARTMENT REPORT

AUGUST, 2014

DIRECTOR'S OFFICE

- The Health Director attended the Lancaster County Management Team's Legislative Retreat on August 14th. The Team previewed legislation for the 2015 legislative session.
- The Health Director met with the Mayor's Office Legislative Team including the new City Lobbyist, Eric Gerrard, to discuss upcoming legislation.
- The City Council held a public hearing on August 11, 2012 on the proposed budget for FY 2015 and FY 2016 and approved the budget on August 25, 2014. The proposed Environmental Public Health fee increases were approved by the County Commissioners on August 26th and will be reviewed by the City Council on September 8, 2014.
- Brad Meyer has been selected as the new Executive Director of the Peoples' Health Center and will begin employment in September. The Health Director served on the Selection Committee.
- Employee of the Month – Doug Tangeman – Environmental Public Health

ANIMAL CONTROL

Animal Control Stats

	Sep 11- Jul 12	Sep 12- Jul 13	Sep 13- Jul 14
Pet Licenses Sold	56319	57136	57861
Cases Dispatched	21513	21493	22314
Investigation	23281	23140	24053
Animals Impounded			
Dogs	1508	1431	1445
Cats	1170	924	1119
Court Citations Issued	228	307	366
Warnings/Defects Issued	12759	13886	15545
Bite Cases Reported	443	428	415
Attack Cases Reported	57	46	52
Dogs Declared (PPD, DD,V)	80	88	84
Animal Neglect Investigations	652	682	713

Department Report – August, 2014

Injured Animal Rescue	771	650	724
Wildlife Removal	458	376	433
Dead Animal Pickup	2031	1821	1755
Lost and Found Reports	2184	2277	2108
Phone Calls	43747	46502	41541
Average Response Time (in mins)	16	21	27

- Animal Control officers and dispatchers have been busy with the call volume and the after hour bat calls. July and August have been busy months with an average of 4-5 bat calls per night. To date, approximately 400 bats have been tested and 2 have tested positive for the rabies virus.
- Pet license sales have increased slightly. We have done some education and outreach in the more newly annexed properties and are informing residents that Animal Control does provide services in the City limits and if they own a dog or cat, they must license them after they've vaccinated for rabies.
- Officers have increased follow-up enforcement with owners that are behind in licensing their pets. Increased defects and warnings have resulted in more citations for lack of compliance. Animal Control does not collect any revenue from fines imposed on convicted owners.
- Customer service remains a priority for the Division. The Manager has talked about the importance of good customer service with the Dispatchers and Officers. We have a short questionnaire on our website and we promote the questionnaire as a way for the public to tell us about the service they received from Animal Control.
- The Division Manager and Field Supervisor are in the process of looking at our fleet vehicles along with the Police Garage Manager. We have been putting more economical vehicles into service and have put 3 Ford Transit Connects in service over the past 2 years. These vehicles cost less but do not have the same capacity and options for winter and snow travel. Having a combination of the smaller vehicles along with the more full size vehicles has worked well.
- The Animal Control Office Manager and the Division Manager continue twice monthly meetings with the Capital Humane Society management staff. Discussions are underway for another low cost microchip clinic and the need to recruit volunteer veterinarians and technicians to help with that effort.

COMMUNITY HEALTH SERVICES

Access to Care

A Quality Improvement project was completed in 2013 to “count” services in which CHS staff members connect patients to a needed source of health care. In FY 2013-2014, CHS staff made 4,361 contacts with individuals related to health care connection needs. This number is slightly less than 4,697 contacts made in FY 2012-2013.

A contact is “counted” in our electronic health record if it meets the following criteria:

1. Teaching is completed on access to care: *Staff will cover at least three (3) topics below in order to “bill” for services.*
 - a. Promote the consistent use of medical, dental and mental health providers for continuity of care;
 - b. Promote the use of preventive health care such as,
 - i. Cancer and cardiovascular screenings appropriate for age,
 - ii. Immunizations,
 - iii. Dental exams and cleanings;
 - c. Promote the responsible utilization of urgent and emergency care;
 - d. Prompt communication with providers; e.g. 24 hour notification of inability to keep appointments;
 - e. Promote the responsible utilization of specialty care;
 - f. Promote patient knowledge of covered services on their particular health insurance plan such as,
 - i. Vision care,
 - ii. Durable medical equipment,
 - iii. Inpatient and outpatient benefits, or
 - iv. Medications.
2. Provide significant assistance to the patient in applying for or maintaining his/her health insurance (e.g. Medicaid application, General Assistance application, calling a DHHS caseworker, etc.).
3. Provide significant assistance to the patient with a medical home appointment (e.g. coordinating transportation, interpretation, etc.).

Patient Satisfaction Survey

Eighty (80) patients participated in a satisfaction survey the week of June 9-13, 2014. During this week, staff from clinic services (CHS, Dental and WIC), customer services/registration desk, and home visitation services made a concerted effort to obtain feedback from our patients about “how we are doing”. Overall, our services were rated 4.70 out of 5.0 by our patients for this time period. This average rating was slightly decreased from our last patient satisfaction survey in which our overall rating was 4.73 out of 5.0.

Language

Surveys are available in Arabic, English, Spanish, and Vietnamese. We do not ask a question on the survey about the patient's primary language spoken, thus a survey could be completed in English with the help of an interpreter.

- English Language Surveys = 63
- Spanish Language Surveys = 12
- Arabic Language Surveys = 3
- Vietnamese Language Surveys = 2

Services

“Service you are here for today”. Some patients indicated more than one service per survey. 6 blank answers.

- Medical/Nurse = 30
- Home Visit = 25
- WIC = 12
- Blank = 9
- Dental = 4

Did you have any problems scheduling your appointment for today? No blank answers.

- No = 99%
- Yes = 1%

Was the staff polite and friendly? No blank answers.

- Clinic Staff – Yes = 100%
- Reception Staff – Yes = 98%
- Interpreter – Yes = 97%
- Other – Yes = 96%

Were your questions answered? No blank answers.

- Yes=100%

Were you given the information you needed? 1 blank answer.

- Yes=100%

Please rate your overall experience today on a scale of 1 to 5. 1 blank answer.

5=the highest score or excellent. 1=the lowest score or poor.

- 1=0%
- 2=3%
- 3=4%
- 4=11%
- 5=82%

DENTAL HEALTH & NUTRITION

WIC Program

Caseload (Participation)

Total	3819
Main	2866
LMEP	182
Cornhusker Clinic	771

Food: For March 2014

Food Monthly Obligations	\$ 209,249.46
Food Pkg Avg.	\$ 67.59
Women	\$ 43.21
Infants	\$ 140.49
Children	\$ 46.03

Mentoring:

(Number and school)

Students	
Interns	2 RD interns
Volunteers	2
LMEP Residents	1

Fifth straight month of caseload growth, highest monthly caseload for the fiscal year.

Dental Health

Number of patients served (unduplicated count): 602

Number of patient encounters (duplicated count): 702

Number of client visits (duplicated provider appointments): 1018

Clients served during Thursday Evenings: 81 with 124 provider appointments

Children served: 348 (58%)

Medicaid clients served: 347 (58%)

General Assistance clients served (unduplicated): 12 (2%)

Uninsured, at or below 100% of poverty (unduplicated): 183 (30%)

Uninsured between 101%-200% of poverty: 58 (10%)

Reporting another language other than English as primary language: 42%

Racial and Ethnic Minorities: 63%

1 dental Student and 2 dental hygiene students from the College of Dentistry rotated through the clinic.

1 dental assisting student from Southeast Community College rotated through the clinic.

ENVIRONMENTAL PUBLIC HEALTH

Air Quality Update - Asbestos

- The LLCHD Air Quality Section is responsible for administration of the federal National Emissions Standard for Hazardous Air Pollutants (NESHAP) for asbestos activities in Lincoln and Lancaster County. Asbestos is a known carcinogen, so anytime a structure that contains asbestos is remodeled or demolished, it must be thoroughly inspected and any asbestos material must be removed. Trained and licensed contractors must use rigorous control methods to properly contain the asbestos and prevent the release of material during removal, transport, and deposition in the landfill ensure that it does not become a public health threat.

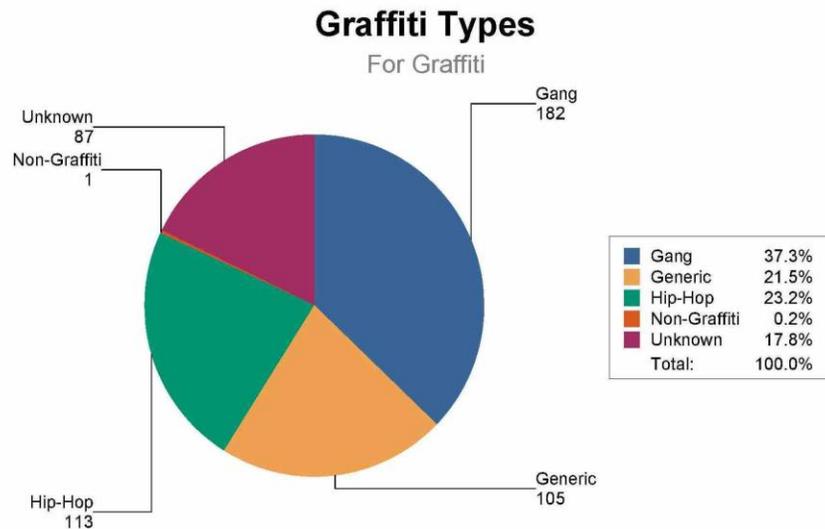


- Since September 1, 2013, staff have reviewed and inspected 73 asbestos demolition and 30 asbestos removal projects at various locations in Lincoln and Lancaster County. Examples of some of these projects include buildings at Lincoln Public Schools property throughout the city, buildings on UNL campuses, and the renovation of the former Farmers Mutual Insurance Building, Unitarian Church, St. Patrick's Church, Redeemer Lutheran Church, Second Baptist Church, First Plymouth Church, NPPD Sheldon Station, State of Nebraska Regional Center, ADM, and Veyance. Three enforcement actions have been completed relative to violations of the NESHAP for asbestos which included failure to inspect or survey prior to the commencement of demolition or renovation and provide proper notification for such activities. The civil penalties ranged from \$1,545.00 to \$17,460.50.

Graffiti Prevention Program

- The KLLCB Graffiti Prevention Program was established in June 2009 with funding from the Mayor's Office. The Graffiti Prevention Program's primary focus is to use educational approaches to minimize graffiti in Lincoln by: utilizing a graffiti complaint process; coordinating the delivery of anti-graffiti messages to the community; and initiating community and business owner collaborations and programs that empower Lincoln to address and prevent graffiti.
- The cornerstone of the program is the complaint process: the part-time Graffiti Prevention Coordinator documents the graffiti with a photo and enters the complaint into the Accela Automation software. A letter, along with the initial inspection photo, is sent to the property owner advising them of the complaint and of their responsibility to remove the graffiti within 15 days from notification per City Ordinance. The letter explains the negative impact of graffiti, acknowledges that they are a victim of graffiti vandalism and encourages removal of the graffiti within 24 to 48 hours (often the Graffiti Coordinator has personal contact with the victims explaining the process resulting in improved cooperation and quicker removal now and in the future). If the graffiti has not been removed after seven days, the property owner is contacted. If upon inspection, the graffiti remains after 15 days special intervention options are considered.
- 17.83% of reported graffiti was removed before the initial inspection was made. On average, 89.55% of graffiti was removed within 15 days and the average number of days to close all cases was 7.33 days. Only one property has been abated in the program's history.

- There were 488 graffiti complaints received from July 1, 2013 to June 30, 2014; a 31% decrease from the previous 12 months. With collaboration between the Graffiti Prevention Program and the Lincoln Police Department, arrests continue to be made sending a strong anti-graffiti message to the graffiti community.



- The continued success in reporting and removing graffiti, and the apprehension and subsequent prosecution of graffiti vandals, are attributed to public awareness, police efforts, and sharing of information between LPD and the Graffiti Prevention Program. We firmly believe that by educating the property owners about the importance of quick graffiti removal, we will continue to see a drop in repeat graffiti. KLLCB program's cornerstone is that community improvement occurs through individual engagement.

HEALTH DATA & EVALUATION

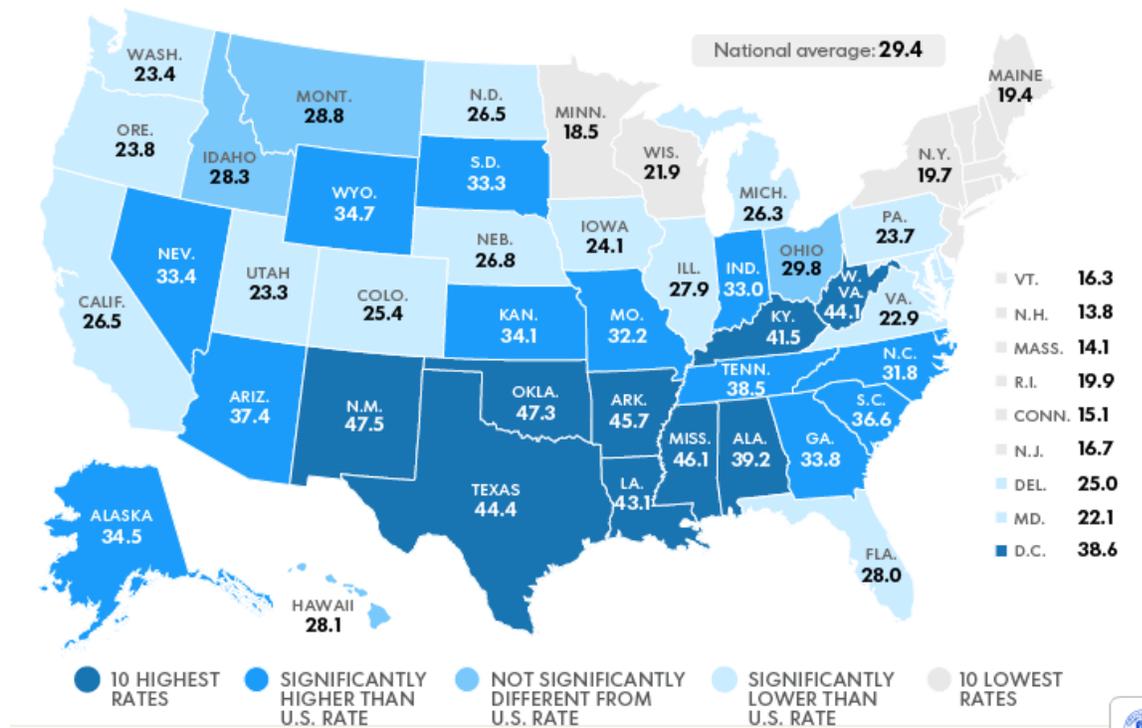
- Fortunately, there is little news to report about communicable diseases this month despite the typical increase in gastrointestinal diseases and bat activity we see most summers. There was a small outbreak of shigellosis in a childcare setting that we were able to get under control. It's too early to say we have avoided cases of WNV (West Nile virus) as the mosquitoes that spread the disease are present in the community. We are also not totally confident that students and visitors won't bring a disease back to the community from their travels, so we are on the watch for measles (Kansas City and Wichita have had outbreaks), Chikungunya and the remote possibility of Ebola being detected from missionaries, students and others who have been in West Africa. It is time to start thinking about getting immunized against the flu and pharmacies and physicians' offices should have the vaccine on hand. Remember, it is recommended that everyone six months or older get immunized against the flu.
- Our Public Health Emergency Response Coordinator, Randy Fischer, has been meeting with administrators and staff from the community's long-term care and assisted living facilities to get them better prepared for potential emergencies. He is assisting them in getting their

emergency operations plans enhanced to meet the new requirements from the Centers for Medicare & Medicaid Services (CMS) that go into effect in 2015.

- The Vital Statics dashboard has been updated for 2013 mortality (death) data. In summary:
 - There were 1,995 deaths of Lancaster County residents in 2013, up from 1,927 in 2012.
 - The average age of death was 71.9 for men and 78.5 for women in 2013, which reflects a slight lowering of the gap between the average age at which men and women die.
 - The infant mortality rate (the number of infant deaths per 1,000 live births) was 4.2 in 2013. The infant mortality rate of 4.2 is the lowest rate we have experienced and is well below the *Health People 2020* goal of 6.0. It is a reduction from the 2012 rate of 6.1 infant deaths per 1,000 live births. However, as the chart on the dashboard shows, the infant mortality rate is somewhat volatile as a small change in the number of infant deaths can result in the rate rising or falling by tenths of a point or more since the total number of births has been right at 4,000 a year for the past several years (there were 4,030 births in 2013).
 - Cancer remains as the leading cause of death for both males and females (oddly 210 men and 210 women died of cancer in 2013). This is a trend that continues as cancer first became the leading cause of death in in Lancaster County in 1999. (Among cancers, lung cancer is the leading cancer death.) Heart disease is the second leading cause of death for both genders, followed by chronic lung disease, which is a distant third.
- While the 2013 birth data has been available on the Vital Statistics dashboard for several months, the *USA Today* recently printed a map of 2012 teen birth rates by state that they produced from data released by the Center for Health Statistics (CDC). As a state, Nebraska's rate of teen births (26.8 births per 1,000 females ages 15-19) in 2012 was significantly below the national average of 29.4.

TEEN BIRTHRATES BY STATE

Births per 1,000 females ages 15-19:



Locally, the Lancaster County teen birth rate for 2012 was 22.0 and the 2013 rate dropped to 16.8 so we are considerably below the state rate in 2012 and our 2013 rate will likely be well below the 2013 state rate once those data are released.

HEALTH PROMOTION & OUTREACH

Chronic Disease Prevention and Minority Health

- LLCHD received notification that it was awarded a two-year Maternal Child Health grant from the Nebraska Department of Health and Human Services to continue our efforts to impact childhood obesity. This funding will allow us to expand the work of the “GO Team” that has been established to promote and evaluate the effectiveness of the 54321GO message in improving health behaviors. The current 54321GO efforts also include connection to the Playful City, USA and the Let’s Move! initiatives. This grant supports a LLCHD staff member and has, as funded partners, the Clyde Malone Community Center, Teach a Kid to Fish, and the Carol Yoakum Family Resource Center.
- Lincoln continues to be in second place in the third annual “National Bike Challenge” behind Madison, Wisconsin. Lincoln boasts over 1,100 riders that have accumulated

almost 500,000 miles bicycling the past three months. Nebraska is in 3rd place in the state race behind Wisconsin and Vermont, respectively first and second. Several Lincoln schools are placing well in the national competition between educational institutions with Union College in 2nd, UNMC-College of Dentistry in 3rd, and UNL in the top 15.

- Lincoln currently is recognized as a bronze level Bike Friendly City by the League of American Bicyclists (LAB). On August 15, Steve Clark from LAB came to Lincoln to meet with people leading the charge to encourage bicycling in the city. Represented at the meeting were UNL, multiple City Departments, Great Plains Trails Network, Mayor's Pedestrian Bike Advisory Committee, local businesses, and other organizations dedicated to increasing biking in Lincoln. LAB has identified Lincoln as a "priority community" to work toward a gold level Bike Friendly City. Among the reasons for this prioritization are: the ranking in the National Bike Challenge for the past three years by the City, UNL and others; the commuter trail system; the number of League Certified Instructors (23 LCIs); the proposed protected bike lane; the emphasis on multi-modal transportation in the City's Comprehensive Plan; and other activities with an emphasis on increasing the amount and safety of bicycling in Lincoln. The technical assistance provided by Mr. Clark will be helpful in the next application to LAB for greater Bike Friendly City status.

Injury Prevention

- Staff conducted child passenger safety events at Honda of Lincoln, Madonna Proactive, and the Center for People in Need. Ninety-four seats were checked at the three events and, at the Center for People in Need, 32 seats were provided to families. Nebraska Office of Highway Safety provided funds for these child passenger safety seats for families who otherwise could not afford to purchase them.
- Staff conducted a home safety training for 25 Community Action Partnership of Lancaster and Saunders County Early Head Start outreach workers. The training was on the prevention of scalds and burns and was presented by Crystal Berner, member of the Safe Kids Home Safety Task Force, and employed by the Saint Elizabeth Regional Medical Center's Burn Unit.

INFORMATION & FISCAL MANAGEMENT

- The upgrade for Accela (enterprise software used by Environmental Health and three other City Departments) was installed on August 15th and implemented on August 18th. Thanks to the efforts of Mark Kenne and Brent Pavel, the implementation was very smooth for the Health Department
- The Health Department will complete their migration from a Novell file server to Windows server on August 27th.

LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT

Board of Health

August 12, 2014

ROLL CALL

The meeting of the Board of Health was called to order at 5:00 PM by Heidi Stark at the Lincoln-Lancaster County Health Department. Members Present: Roma Amundson, Alan Doster, Doug Emery, Karla Lester, Michelle Petersen, Craig Strong, Mike Tavlin, Brittany Behrens (ex-officio), Rick Hoppe (ex-officio), Tim Sieh (ex-officio) and Heidi Stark.

Members Absent: Jacquelyn Miller.

Staff Present: Judy Halstead, Charlotte Burke, Steve Beal, Steve Frederick, Andrea Haberman, Gwendy Meginnis, Kathy Cook and Elaine Severe.

APPROVAL OF AGENDA

Dr. Stark asked if there were any additions or corrections to the Agenda.

Motion: Moved by Dr. Doster that the Agenda be approved as printed. Second by Dr. Lester. Motion carried by acclamation.

APPROVAL OF MINUTES

Dr. Stark asked if there were any additions or corrections to the Minutes.

Motion: Moved by Mr. Emery that the June 10, 2014 Minutes be approved as printed. Second by Mr. Tavlin. Motion carried by acclamation.

PUBLIC SESSION

DEPARTMENT REPORTS

1. Health Director Update

Ms. Halstead stated the City Council held a public hearing on the FY 2015-16 proposed budget on August 11, 2014 and is scheduled to vote on a final version on August 25, 2014. The proposed fee increases for the Environmental Public Health Division will be presented to the City Council in September and County Board of Commissioners in August.

Ms. Halstead announced Brad Meyer has been hired as the Executive Director of the Peoples Health Center. His first day of employment will be September 15, 2014. He previously worked as a Health Center Director in northern Iowa. She reported Dr. Paulus will be retiring from the Peoples Health Center. Dr. Michael Israel will replace Dr. Paulus.

Ms. Halstead reported on a proposed integration of primary care services and mental health services by Lutheran Family Services and the Peoples Health Center. Expanded services will begin in 2015/2016.

Ms. Halstead announced Eric Gerrard has been hired as the City's lobbyist.

CURRENT BUSINESS (Action items)

1. Proposed Date Change for the November Board of Health Meeting

Ms. Halstead stated the November Board of Health meeting is scheduled for November 11, 2014 - Veteran's Day. Ms. Severe polled the Board members regarding moving the meeting to November 4th or November 11th. Both dates were agreeable with everyone with the November 4th date preferred.

Motion: Moved by Ms. Amundson to move the November Board of Health Meeting to Tuesday, November 4, 2014. Second by Mr. Tavlin. Motion carried by acclamation.

CURRENT BUSINESS (Information Items)

1. Update on Dental Health & Nutrition Division

Ms. Meginnis reviewed the proposed dental fee increases for the Dental Health & Nutrition Division. The Dental Division fees have not been increased since 2008-2010. The minimum fee for service will increase from \$25.00 to \$30.00. Staff compared fees with the fees charged by Medicaid, the Peoples Health Center, the UNMC College of Dentistry and the Lincoln Dentist Survey. She noted the Department never denies services if a patient is unable to pay. She stated the Thursday evening clinic continues to be utilized and an additional dentist was added. The Thursday evening clinic is now staffed with two dentists, three dental hygienists and two dental assistants.

2. Healthy Families America Accreditation

Ms Haberman stated the Maternal Child Health Services is in the process of obtaining accreditation of the home visitation program from Healthy Families America. She stated Healthy Families America is a program designed to reduce and prevent child maltreatment. The program connects expectant parents with home visitation staff and provides the families with guidance, support and information to help the parents succeed at parenting. She stated the Division submitted a self-study in June and the Healthy Families America national office conducted a site visit in July. Healthy Families America will notify the Division if we are accredited in September. Ms. Haberman reviewed the 12 Critical Elements of the Program. Elements include initiating early services to the clients, use of a standardized assessment tool, offering voluntary services, services focused on parents and the child, providing culturally sensitive services, and assuring all families are connected with a medical provider.

She stated the program currently has 521 open cases and staff continue to provide ongoing intense supervision of these families. Ms. Bonesteel, the Program Supervisor, will provide an update to the Board of Health at the September meeting.

3. "Let's Move" Update

Board of Health Minutes - August 12, 2014

Ms. Burke provided an update on the Let's Move Initiative. She states many of the initiatives in Lincoln, i.e. TeachAKid 2 Fish; Move More Lincoln, 54321Go and Let's Move Cities, Towns and Counties, address obesity and encourage physical activity. Lincoln was recently named a Playful City by the National League of Cities. She reviewed the Let's Move Cities, Towns and Counties Goals and noted the City has obtained 1 bronze and 4 gold certificates for the 5 goals. Goals included Start Early, Start Smart - child care centers - healthy food choices; My Plate, Your Place, Smart Servings for Students, Model Food Service - Fit Pick Vending Machine selections and Active Kids At Play. She also previewed a Video that was filmed by the Citizens Information Center about Lincoln's health initiatives and the video has been submitted to CNN.

4. Behavioral Risk Factor Surveillance System Update

Steve Frederick provided an update on the 2011 - 2013 Behavioral Risk Factor Surveillance System data. He reviewed the raking process and how new characteristics were added, more demographic variables were added and cell phone responses were added to increase the representativeness of the data. He highlighted the LLCHD BRFSS Dashboard noting there are results for each topic by age, income, gender and race. Areas showing improvement include reduction in drinking rates, reduction in current smokers and increase in the number of persons fastening their seatbelts. The Dashboard will be enhanced over time and will include more results and include CDC data on selected measures for the nation and states.

FUTURE BUSINESS

Update on Healthy Families America (HFA) Accreditation.

ANNOUNCEMENTS

Next Regular Meeting – September 9, 2014 – 5:00 PM

The meeting was adjourned at 6:20 PM.

Elaine Severe
Recording Secretary

Jacquelyn Miller, DDS
Vice-President



Memorandum

Date: ♦ September 9, 2014
To: ♦ City Clerk
From: ♦ Amy Hana Huffman, Planning Dept.
Re: ♦ Administrative Approvals
cc: ♦ Mayor Chris Beutler, Planning Commission, Jean Preister

This is a list of the administrative approvals by the Planning Director from September 2, 2014, through September 8, 2014:

Administrative Amendment No. 14056 to Use Permit #84B, Elizabeth Park South Commercial Center, approved by the Planning Director on September 8, 2014, requested by Rega Engineering, to reduce the front yard setback adjacent to both S. 70th Street and Pioneers Boulevard from 50' to 20', and to revise the parking lot layout on Lot 1, on property generally located southwest of South 70th Street and Pioneers Boulevard.

Administrative Amendment No. 14057 to Special Permit #06046, Dakota Springs Community Unit Plan, approved by the Planning Director on September 5, 2014, requested by Civil Design Group, to adjust the build through lot lines of future lots 9A and 9 B to accommodate the foundation already constructed, on property generally located at S. 1st and W. Saltillo Rd.

Administrative Amendment No. 14058 to Use Permit #140C, Appian Way Regional Shopping Center, approved by the Planning Director on September 3, 2014, requested by Clark Enersen Partners, to clarify the setbacks for the building envelope on Lot 1, Block 4, and modify the street alignment, on property generally located at S. 84th Street and Highway 2.

C:\Users\ncsjlp\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\BYSDQI7Q\AA weekly approvals City.wpd

City of Lincoln – Lancaster County
Public Safety Radio System Assessment Report

December 2013

Dave Kaun
Tom Pavek
John Thompson



Elert & Associates
www.elert.com

Table of Contents

PROBLEM STATEMENT3

EXECUTIVE SUMMARY3

 Radio System Overview3

 Radio System Recommendation4

OPTIONS OVERVIEW5

 Budgetary Costs for Radio System5

CITY OF LINCOLN – LANCASTER COUNTY FINDINGS/ISSUES8

 Issues/Information Discovered through Interviews8

 Observations and Lincoln Radio Shop Interview Information9

 Information Reported through Surveys10

EDACS RADIO COMMUNICATIONS SYSTEM.....12

 800 MHz EDACS Trunking System Sites.....13

 Radio Dispatch Consoles13

 Bi-Directional Amplifier BDA Equipment.....14

 Primary Users of the EDACS Voice Radio System15

 System Performance and Operation15

 Technical Support19

EDACS END OF LIFE CONCERN.....20

OTHER RADIO COMMUNICATIONS SYSTEMS20

 Rural Fire20

 Paging20

 County Siren System21

 Lincoln Public Schools21

 Mobile Data Systems22

 Other 800 MHz Radio Systems (Site)22

 Other VHF Radio Systems (Site).....22

 Other UHF Radio Systems (Site).....23

 900 MHz Radio Systems23

FCC LICENSES FOR INFRASTRUCTURE24

 800 MHz Trunking System Channels.....24

 Conventional 800 Channels25

 Conventional UHF Channels26

 Conventional VHF Channels26

MICROWAVE, FIBER AND NETWORK CONNECTIVITY.....28

PHYSICAL FACILITIES.....29

 Towers29

 Dispatch Center (LECC).....29

 Jensen Park Site30

 Military Road32

Fire Station 14 – Backup Dispatch34
Arbor Road35
FIELD UNITS36
PROPAGATION PREDICTION SIMULATIONS40
City of Lincoln – Lancaster County Terrain.....40
City of Lincoln – Lancaster County Land Use41
Coverage Predictions41
SYSTEM USERS44
Lincoln Public Safety Users44
Lancaster County Sheriff45
Rural Fire45
Public Service46
Lincoln Public Schools47
SYSTEM IMPROVEMENT OPTIONS47
General.....47
Recommendation50
Alternative Recommendation for Non-Public Safety.....53
Fire Paging Recommendation.....53
System Infrastructure Summary Recommendation53
Option for Public Services56
Coverage Predictions57
Microwave59
RFP Design Considerations59
BUDGETARY COSTS FOR POSSIBLE SOLUTIONS61
Option 1: Two Sites P25 Simulcast (Today’s System – P25)61
Option 2: 800 MHz P25 / 800 MHz Analog/DMR62
Option 3: 800 MHz P25 / VHF P25 / DMR64
RECOMMENDATION66
TRANSITION PLANNING68
Training.....68
APPENDIX 1 – USER TERMINAL INVENTORY.....69
APPENDIX 2 – FCC TRUNKED SYSTEM LICENSING70
APPENDIX 3 – LANCASTER COUNTY RURAL FIRE DISTRICTS77
APPENDIX 4 – EDACS USER LIST78
APPENDIX 5 – DELIVERED AUDIO QUALITY (DAQ)79
APPENDIX 6 – USER DEFINITIONS.....80

Problem Statement

The City of Lincoln – Lancaster County retained Elert & Associates (E&A) to develop a complete assessment for an enhancement to the aging 800 MHz trunked radio system used by the city and county public safety personnel. The system supports law enforcement, fire, EMS, and other emergency and public service users.

The study includes the requirements for the Lincoln Emergency Communications Center, which dispatches for public safety agencies, and it has a focus on emergency communications facilities, system management, interoperability with adjacent county agencies, Lincoln Public Schools and the State of Nebraska. The study also contains best practices for communications and recommendations with budgetary estimates.

Executive Summary

Elert & Associates was asked to review the current radio system as well as the dispatch center. The following is a summary of our findings.

Radio System Overview

City of Lincoln – Lancaster County currently uses an EDACS 800 MHz radio system owned by the City of Lincoln and operated by the Lincoln Radio Shop. This system is old and outdated, and the platform is at end of life. Lincoln – Lancaster County wants to update its system to a standards-based P25 communications infrastructure and ensure interoperability with neighboring public safety agencies and the State of Nebraska.

This study is intended to present what E&A recommends as the best options for the City and County, as well as a path forward. The recommended system is the one deemed the most cost effective way to meet the requirements, as identified through interviews and through assessing terrain issues in the coverage area.

Upgrading a system as complex as this is challenging. Some of these challenges at Lincoln – Lancaster County are as follows:

- Cost – Although outdated, the current system is not very expensive when compared with any upgrade alternative. A new system will require significant expenditures of both capital and operating dollars.
- Technology – Multiple user groups share the current system. Although this single system approach can be maintained, it may be difficult to consider implementing certain technologies while some users are operating P25 equipment and others are using analog or a different non-public safety grade digital system.
- Coverage – Elert & Associates has identified several technical solutions, and a recommended approach is included in the technical summary.
- User Requirements – Public safety users find P25 has been standardized to focus on their requirements while other users of the system not requiring these features may find there are other alternatives that have a better fit.

Radio System Recommendation

E&A recommends that Lincoln – Lancaster County prepare an RFP for 800 MHz and VHF P25 systems for Public Safety and a Digital Mobile Radio (DMR) system for Public Service and Lincoln Public Schools (LPS)¹.

In addition, E&A recommends a more detailed study of the needs for LPS, as there are some specific technologies being developed for school communications that may be beneficial to LPS's operating environment. RFPs should define the technical requirements of the City-County, providing a baseline that all vendors/respondents would need to design their system to meet. Any considered options must meet the defined minimum criteria.

E&A has identified three options (described in an overview and the technical summary of this report on the next page), and our recommendation is to move forward with Option 3. Option 3 is a mix of P25, analog, and DMR and provides radio platforms that meet the radio communications needs of City and County users. We estimate that the capital costs for Option 3 will be \$9,355,000 for the radio infrastructure and \$11,128,000 for new field terminal units.

Public Safety users will have a tool that is designed for this level of service and provides the features that Public Safety uses on a continuous basis. The P25 system infrastructure will only service public safety communications providing multiple levels of priority with multiple advanced digital encryption platforms and data interfaces for options such as GPS location built into the field units.

Public Safety field units are ruggedized beyond that of other land mobile field radios and are designed to operate in hazardous atmospheres. A number of P25 features are realized only through capabilities of radio dispatch consoles. These items all contribute to the cost of the system and of the field terminal units. Any non-public safety users would be paying for but would not necessarily benefit from many of these P25 system features.

All Public Safety users including Sheriff and Rural Fire in this option would employ multiband radio units to enable interoperability with the City of Lincoln, Lancaster County, adjacent counties and with the State of Nebraska's communications system using VHF and 800 MHz. Rural Fire will continue to employ analog systems to provide the basic paging capability and could maintain interoperability with adjacent Fire departments with some multiband field radio units for leadership or for all officers over time.

Non-public safety users require a solid basic communications platform that a user can maximize the utility of the field units. The Digital Mobile Radio platform provides the latest communications system features needed for basic communications requirements at a lower cost per user. Interoperability can be easily provided via gateways or console patching to the public safety P25 system when the need arises.

¹ The agencies and department included in the major user groups are found in Appendix 6 – User Definitions.

Options Overview

Budgetary Costs for Radio System

Option	Description of Improvement	Estimated Cost	Outcome
1	<p>Single P25 Trunking System – All Users</p> <ul style="list-style-type: none"> • 800 MHz • 2 sites • 20 channels per site • Trunking controller • Simulcast controller per channel • Arbor 5-ch backup <p>Microwave network Direct control of infrastructure Backup control station access Structural analysis on each tower Replace military equipment shelter Microwave network 809 P25 mobiles 428 analog mobiles 1802 P25 portables 468 analog portables 143 P25 control stations 20 analog control stations 12 P25 radio consoles</p>	\$22.19M	<p>Two-site 800 MHz P25 simulcast trunking system</p> <p>New radio terminals for all users; no pagers</p> <p>Slight improvement in coverage due to digital for P25 users</p>

Option	Description of Improvement	Estimated Cost	Outcome
2	<p>P25 Trunking - Public Safety/Service</p> <ul style="list-style-type: none"> • 800 MHz • 4 Sites • 14 channels per site • Trunking controller • Simulcast controller per channel • Arbor 5-ch backup <p>P25 Conventional - Sheriff</p> <ul style="list-style-type: none"> • 800 MHz • 6 sites • 2 channels per site • Trunking controller • Simulcast controller per channel <p>Analog Conventional – Rural Fire</p> <ul style="list-style-type: none"> • 800 MHz • 8 sites • 2 channels per site • Simulcast controller per channel <p>Paging – Rural Fire</p> <ul style="list-style-type: none"> • VHF • 2 separate 4-site systems • 1 channel per site • Simulcast controller per channel <p>Digital Mobile Radio (DMR) – LPS</p> <ul style="list-style-type: none"> • 800 MHz • 2 sites • 2 repeaters per site • 4 talk channels per site • DMR controller <p>Direct control of P25 infrastructure Microwave network Backup control station access Structural analysis on each tower Replace military equipment shelter Equipment shelters on new sites 809 700/800 MHz P25 mobiles 225 DMR mobiles 203 analog mobiles 1665 700/800 MHz P25 portables 275 DMR portables 330 analog portables 172 700/800 MHz P25 control stations 18 analog control stations Over the air programming 20 P25 radio consoles</p>	\$30.25M	<p>Four-site 800 MHz P25 simulcast trunking system for City</p> <p>Six-site 800 MHz simulcast P25 conventional system for Sheriff</p> <p>Eight-site 800 MHz analog conventional</p> <p>Eight-site VHF paging system for Rural Fire</p> <p>Two-site 800 MHz DMR system for LPS</p> <p>New radio terminals for all users, no pagers</p> <p>Improved coverage for all users</p>

Option	Description of Improvement	Estimated Cost	Outcome
3	<p>P25 Trunking – City Public Safety</p> <ul style="list-style-type: none"> • 800 MHz • 4 sites • 12 channels per site • Trunking controller • Simulcast controller per channel <p>P25 Trunking – Sheriff & Rural Fire</p> <ul style="list-style-type: none"> • VHF (SRS) • 2 sites • SRS + 2 channels per site • Trunking controller • Simulcast controller per channel <p>Paging Infrastructure – Rural Fire</p> <ul style="list-style-type: none"> • VHF • 2 separate 4-site systems • 1 station per site • Simulcast controller per channel <p>DMR – Public Service & LPS</p> <ul style="list-style-type: none"> • 800 MHz • 2 sites • 7-8 talk channels per site • DMR controller <p>Direct control of P25 infrastructure Microwave network Backup control station access Structural analysis on each tower Replace military equipment shelter Equipment shelters on new sites 400 multi-band P25 mobile 203 VHF P25 mobile 616 DMR mobile 1257 multi-band portable 240 VHF P25 portable 679 DMR portable 140 700/800 MHz P25 control station 44 VHF P25 control station 35 DMR control station Over the air programming 20 P25 radio consoles</p>	<p>\$24.81M</p> <p>Note: Estimated cost would be reduced if fewer multiband radios were acquired</p>	<p>Four-site 800 MHz P25 simulcast trunking system for City Public Safety</p> <p>Two-site P25 SRS simulcast trunking system for Sheriff and Rural Fire</p> <p>Four-site paging system for Rural Fire</p> <p>Two-site DMR system for Public Service and Lincoln Public Schools</p> <p>New radio terminals for all users; no pagers</p> <p>Improved coverage for all users</p>

City of Lincoln – Lancaster County Findings/Issues

Elert & Associates consultants completed site visits to the dispatch center, city/county towers, and radio shop facilities, and conducted interviews with 26 county and city public safety staff members. E&A distributed radio system user surveys to those interviewed and other system users through the Lincoln Radio Shop. The comments in the following sections provide a general review of what we believe was learned during this information gathering phase. After completing this portion of the study, we shared the findings with the leadership to gain further feedback.

Issues/Information Discovered through Interviews

The following is a summary of the comments related to the radio system.

- System users state that the overall coverage of the present EDACS system is relatively good, but coverage issues do exist on the county borders and in some municipalities, recreational areas, isolated areas across the County, and within some buildings in the City of Lincoln.
- Users have adopted alternative forms of communications (e.g., cell phones) in areas that they know have coverage issues. Some users have adopted cell phones as their primary form of communications, with the radio system as backup.
- Some users have issues trying to effectively operate the radios because they are unfamiliar with system use. For some users, radios are not simple to operate.
- System failure is very rare.
- EDACS ProVoice (digital mode) was noted to not always work well in some rural areas.
- The radio channel is very busy on game day. During these periods, over 50 to 100 users may be on a single channel. (E&A Note: This may be a procedural issue more than technical – recommend breaking into smaller groups.)
- All of law enforcement operates on the 11 East and 13 West talk groups (Law Main) countywide between 3:00 AM and 3:00 PM, and then splits between three talk groups from 3:00 PM to 3:00 AM.
 - Lancaster Sheriff Department and downtown officers move from the East talk group to the Expanded Dispatch talk group.
 - Lincoln PD SW division moves to the West talk group during the busy period.
- Outdoor portable coverage is relatively good in the City of Lincoln, but there are some coverage issues in various areas of the County.
- In-building coverage issues exist in some schools, the jail, hospitals (outside the ER), shopping malls, basements, and sub-basements.
- Lincoln high schools use EDACS units, while middle and elementary schools use conventional 800 channels.

Observations and Lincoln Radio Shop Interview Information

- Lincoln - Lancaster County currently uses an 800 MHz two-site simulcast EDACS 20-channel trunked radio system that is owned, operated, and serviced by the City of Lincoln. Coverage is provided by two towers in the northwest (Military) and southeast (Jensen Park) portion of the City of Lincoln.
- Originally the EDACS system was set up as two 10-channel sites². In 1997 the system was expanded to a 20-channel simulcast system. In 2006 a five-channel backup system originally to be implemented on a trailer was actually constructed at Arbor Road as a fixed location.
- EDACS equipment is still working well.
- EDACS end of life is driving system replacement activity.
- The list of system components that cannot be replaced is growing.
- Components are failing more often.
- EDACS system site controller hardware is no longer available from the vendor.
- Portable coverage is good in the city. There are potential coverage issues in the north due to terrain.
- The EDACS system uses tower top amplifiers to improve talk-in coverage at the Military and Jensen Park repeater sites.
- About a dozen bi-directional amplifiers are installed in buildings around the City (LECC, jail, hospitals, etc.) to offer improved indoor radio system operation.
- The new jail and Lincoln Public Schools use 800 MHz EDACS channels on a regular basis.
- BDA systems were installed into the jails to enable EDACS operation.
- The City of Lincoln purchased the last EDACS site controller with the system upgrade in 2000/2001. The EDACS DEC master controller is no longer available.
- Other towers supporting conventional repeaters in the north and south portion of Lancaster County provide additional coverage for Rural Fire departments for voice and paging service.
- Rural Fire uses six 800 MHz conventional channels for voice and two VHF channels for paging.

² The original EDACS system was installed in 1987. The main site was at 10th and Charleston, with a backup at the KOLN tower. In 1997 the KOLN site equipment was moved to the new Jensen Park tower site and simulcast with the 10th and Charleston site. In 2000, Military Road replaced the 10th and Charleston site.

- The City of Lincoln Radio Shop is responsible for all maintenance, support, and replacement of the infrastructure components. The City of Lincoln Radio Shop is funded through fees from the agencies that use the system.
- An Open Sky system was initially installed and used for mobile data. It was operational for a short period, but the system was never fully completed.
- Air cards used on a cellular network are now used for mobile data.
- All repeater sites are interconnected by microwave, and the control point is located at the Jensen Park tower site in southeast Lincoln.
- All sites are interconnected to the Lincoln Emergency Communications Center located in the basement of the Hall of Justice building in downtown Lincoln.

Information Reported through Surveys

Note: The following information is from 24 user surveys representing about 76% of the radio users on the City of Lincoln - Lancaster County EDACS 800 MHz radio system. The percentages found below reflect the total number of EDACS units each responder represents.

- 68% are not able to communicate via radio with other members of their department everywhere in their service area. City of Lincoln users have in-building coverage issues, while County users have trouble in some municipalities and along the border areas.
- 98% of the users find the system easy to use.
- 78% of responders have experienced problems reaching dispatch or their department's control station. This was mostly due to an increased level of dispatch activity and not the radio system. Animal Control appears to have a problem with their base equipment.
- 65% of responders report experiencing areas of no coverage.
- 11% of responders have reported a system busy. During interviews it was reported that oftentimes the system is busy with other unit traffic, not that the system is at capacity.
- 87% of responders indicate that they require in-building coverage.
- 86% of responders report having a backup communications plan of some sort in case of failure.
- 82% of responders report that their service area may go beyond the service area borders.
- 20% of responders communicate with adjacent counties or agencies on a normal basis.
- 59% of responders report occasional communication with adjacent counties or agencies.
- 80% of responders report that their talk group is shared with other departments allowing interoperability.
- 9% of responders report experiencing interference at some point when using the radio system.

- 47% of responders use or would like to use mobile data.
- 16% of responders use or would like to use automatic vehicle location.

Responders report use of the following mobile and portable operational system features.

Feature	Mobile	Portable
Scan	88%	86%
Priority Scan	53%	80%
Unit ID	85%	77%
Encryption	12%	13%
DTMF Pad	0%	0%
Noise Cancelling Microphone	16%	40%
Conventional Repeater Operation	8%	65%
Talk Around	73%	64%

Portable Accessories	
Speaker Microphone	85%
Noise Cancelling Microphone	60%
Ear Buds	61%
Headset	52%
Leather Case	30%
Belt Clip	87%
Display	36%

EDACS Radio Communications System

The primary voice communications for most City of Lincoln and Lancaster County Sheriff radio users is a two-site 800 MHz 20-channel simulcast Harris EDACS trunked radio system. The two main sites are located in the northwest quadrant of the City of Lincoln at 1901 North 14th Street (Military Road) and just outside the Lincoln boundary to the southeast at 9001 Yankee Hill Road (Jensen Park). A backup five-channel site (Arbor Road) is located just outside the Lincoln boundary to the northeast at 9600 North 70th Street. Sites are interconnected using 6 and 10 GHz microwave.

Lincoln Emergency Communications Center (LECC) is located at 575 South 10th Street in the lower level of the Hall of Justice building in downtown Lincoln. The LECC is set up with 14 operator stations. Ten of these positions are equipped with Harris Maestro radio consoles that interface directly to the EDACS trunking system.

All Harris Maestro[®] radio consoles are interfaced to the console interface equipment in the dispatch equipment room. The Maestro[®] console located at the Emergency Operation Center at 233 South 10th Street is connected via the City of Lincoln fiber-based I.S. network. Standalone EDACS control stations are installed at the 10 radio dispatch console positions for backup communications.

The console system is connected via 6 GHz microwave to the EDACS trunking system at the Jensen Park site. The console system is also interconnected to the conventional channel equipment at the south building (the Military Road site) via dedicated fiber. The Military Road site is also interfaced to the I.S. network to provide IP overhead via the 6GHz microwave ring.

In the case of simulcast failure, the system is programmed to evenly divide the available channels among the two main sites using channels 1 to 10 at Jensen Park and channels 11 to 20 at Military Road. Military Road was designated as bypass site 1, and Jensen Park became bypass site 2. The system would operate like a two-site communications system. If the infrastructure ever entered the bypass mode, field radio units would revert to site 1 (Military Road) by default thus the coverage would suffer some issues.

The Arbor Road location was chosen to cover I-80 going towards Omaha to serve as a backup repeater site. If needed for communications, the site must be activated manually. Originally, the trunking radio equipment used at the Arbor Road site was planned as a transportable repeater site made up of channels 1 to 5 of the 20-channel frequency set. At the time of E&A's visit, no call sign associated with this location could be found.

Portable coverage was noted as good in the City. Several indoor BDA systems at 911, hospitals, and jails assist with indoor coverage in these areas. Portable coverage in border areas is noted as lacking. Tower top amplifiers are used to improve portable talk-back into the system.

Portables are assigned to officers. Units use the badge number as their alias. Vehicles are assigned and used by the assigned personnel over multiple shifts. Sheriff vehicles are individually assigned.

The primary driver for the need to upgrade is the end of life on the EDACS system (per the manufacturer). The system continues to serve users well, but components are rapidly becoming hard to replace. Maintenance is ongoing, and if the controller were to fail, it could be a major problem, as parts are nearly impossible to obtain.

800 MHz EDACS Trunking System Sites

- Jensen Park (20-channel simulcast)
- Military Road (20-channel simulcast)
- Arbor Road (5-channel backup)

Radio Dispatch Consoles

Radio dispatch consoles are used to communicate with users of the EDACS radio system and other conventional radio channels used by public safety and public service users on City of Lincoln – Lancaster County radio systems. The Harris Maestro console system used by LECC and EMA provides a direct interface into the EDACS infrastructure, while other console models used by University of Nebraska Lincoln (UNL) and the Airport Authority operate control station radios to access the EDACS system. The console equipment provides operation on the other radio systems channels by remote control of base stations or control stations associated with those radio systems.

The number of radio dispatch console positions varies by agency. Each agency is equipped with the number of positions needed to provide the appropriate service.

- Lincoln Emergency Communications Center: 10
- Department of Emergency Management: 1
- University of Nebraska Lincoln: 3
- Lincoln Airport Authority: 2
- Fire Station 14 – backup: 6

The LECC has a total of 14 operator positions. Recently two Channel 50 Lincoln Police Department operators who were located at the Lincoln PD Service Desk were relocated to the LECC. One of these consoles was recently moved from the radio shop to one of the LECC positions to augment that operation. Positions are identified with position numbers 102 and 104 through 116 at the LECC. These positions are set up for call taking and/or radio dispatch per the table below.

	911 BU, Non-Emergency		Law Enforcement				911-Fire/EMS				911 BU, Non-Emergency			
	102	104	105	106	107	108	109	110	111	112	113	114	115	116
911	(X)	(X)	(X)	(X)	(X)	(X)	(X)	Primary Answer Point	Primary Answer Point		(X)	(X)	(X)	(X)
Admin	X	X									X	X		
Radios			X	X	X	X	X	X	X	X			X	X
	Call Take	Call Take	Expanded Dispatch	LE West	LE East	LE Spare/ Training	Supv	Call Take	Rural Fire	City Fire	Call Take	Call Take	INFO	Data Entry

The Department of Emergency Management operates one C3 Maestro[®] IP dispatch console from the Emergency Operations Center located at 233 South 10th Street and is connected to the console interface at the LECC via the Lincoln Information Services IP network. In normal operation, this position is primarily used to set off the Lancaster County warning sirens.

The University of Nebraska Lincoln Police Dispatch Services is located at 300 North 17th Street and utilizes three Zetron Integrator RD operator positions with Model 4217B audio panels. The

Zetron console system activates six control stations connected to a custom BDA system that provides EDACS service in and around the area of the dispatch room. RACOM is pressing the University of Nebraska Lincoln to update their Zetron Console computer OS, though they are not having any issues with their system. The position of the radio shop is to wait on any upgrades of this nature until the City makes decisions on a new system.

The Lincoln Airport Authority is located in the lower level of the Lincoln Airport terminal. The two-position Baker console system operates radios programmed for Airport Authority Police, ALERT, Operations, AIR ALL, Tower, and User Select talk groups. Connectivity is via control stations.

Backup for the LECC is in the lower level of Fire Station 14, where there is one Maestro IP console position linked via the City of Lincoln I.S. fiber network to the LECC and six Zetron console positions that operate via on-site control stations to access the various radios systems used by Lincoln – Lancaster County users.

Bi-Directional Amplifier BDA Equipment

Bi-Directional Amplifier (BDA) receives outdoor signals and retransmits on an indoor antenna network to provide enhanced indoor coverage. The BDA system also receives the talk back signals from the indoor antenna system and re-transmits outdoors. In each direction the signals are amplified to provide the appropriate signal level to the receiving device. System engineering is necessary for each BDA to determine the appropriate signal level and antenna placement.

The City of Lincoln EDACS system utilizes BDA systems to improve indoor coverage. Below are the locations where these systems are installed:

- Bryan LGH East Hospital, Emergency Room, 1600 S. 48th St.
- Bryan LGH West Hospital, Emergency Room, 2300 S. 16th St.
- St. Elizabeth Hospital, Emergency Room, 555 S. 70th St.
- Hall of Justice, Basement and 1st Floor, 575 S. 10th St.
- 911 and Lincoln Police occupy the basement.
- Lincoln Police and Lancaster County Sheriff occupy the first floor.
- Old Jail, Main floor, 605 S. 10th St.
- New Jail, Entire Building, 3801 W. O St.
- Youth Detention Center, Complete building, 1200 Radcliff St.
- Emergency Management, Basement, 233 S. 10th St.
- Backup 911 Center, Basement, 5435 N.W. 1st St.
- Health Department, Basement, 3140 “N” St.
- Lincoln High School, Entire Building, 2229 J St.
- Lincoln East High School, Entire Building, 1000 S. 70th St.

- Northeast High School, Entire Building, 2635 N. 63rd St.
- North Star High School, Entire Building, 5801 N. 33rd St.
- Southeast High School, Entire Building, 2930 S. 37th St.
- Southwest High School, Entire Building, 7001 S. 14th St.
- UNL Police Department-Dispatch

Primary Users of the EDACS Voice Radio System³

- Air National Guard Fire-Rescue
- City of Lincoln – Lancaster County Health
- City of Lincoln – Lancaster County Emergency Management
- City of Lincoln Airport Authority
- City of Lincoln Building and Safety
- City of Lincoln Fire – Rescue
- City of Lincoln Park and Rec
- City of Lincoln Police Department
- City of Lincoln Public Schools
- City of Lincoln Public Works
- Lancaster County Corrections Department (3801 W O St)
- Lancaster County Jail (605 S 10th St)
- Lancaster County Sheriff Department
- Lancaster County Youth Services Center
- Nebraska State Patrol
- University of Nebraska Lincoln

System Performance and Operation

The City of Lincoln controls the EDACS system infrastructure and is maintained by the City of Lincoln Radio Shop. Antennas have likely been changed since initial installation at Jensen Park and Military Road sites, but the transmission lines are probably original. The Radio Shop has a monitoring system to closely watch system performance. Alarms are monitored at some locations. The City of Lincoln Radio Shop does all of the IT work on radio communications systems.

³ A complete list of the EDACS system user groups can be found in Appendix 4.

The subscriber radio emergency button is used by Lincoln PD, the new LC jail, the old jail, Sheriff, State Patrol, UNL PD, and Youth Services. The selected talk group automatically becomes the emergency talk group if this button is energized. Dispatch consoles present an audible indicator until acknowledged by radio dispatch position when the emergency button is pressed. During an emergency, call operation moves to message trunking with hang time. A triple beep indicator appears due to message trunking at the end of hang time to announce this change to users.

The CAD network used to be independent but now is part of the City network. The majority of the other networks are part of the City network and are supported by the City of Lincoln Information Services. The Lincoln Police Department has its own IT personnel.

The Radio Shop uses Zetron SentiDial and CitectSCADA systems to deliver alarm information. They are also trying a Milestone product for video surveillance at the Jensen Park site. They would like to have something like this system at all sites with the new system.

The following are results of an analysis of system call statistics over one year from April 2012 to April 2013. There are 347 talk groups in the Lincoln – Lancaster County EDACS system.

- 84.21% of the total system airtime is logged by Public Safety.
- 9.26% of the total system airtime is logged by Public Service.
- 6.54% of the total system airtime is logged by Lincoln Public Schools.
- 53.38% of the total system airtime is logged by LPD.
- 5.80% of the total system airtime is logged by UNL Police.
- 7.54% of the total system airtime is logged by LFR.
- 5.46% of the total system airtime is logged by Youth Services.
- 2.30% of the total system airtime is logged by LCSO.
- 80% of the total system airtime is logged by 17 talk groups.
- 90% of the total system airtime is logged by 30 talk groups.
- 131 talk groups did not log any airtime over the period.
- 65 talk groups logged fewer than 100 calls over the period.
- 248 talk groups logged less than 60 minutes of total airtime over the period.

A Group Profiled Summary report tallies the call volume and airtime for each talk group in the system. They are sorted by the top 20 talk group by airtime usage. The top 20 talk groups represent over 82% of the air time used. “All Other” talk groups individually represent less than 1% of the total airtime used by system talk groups.

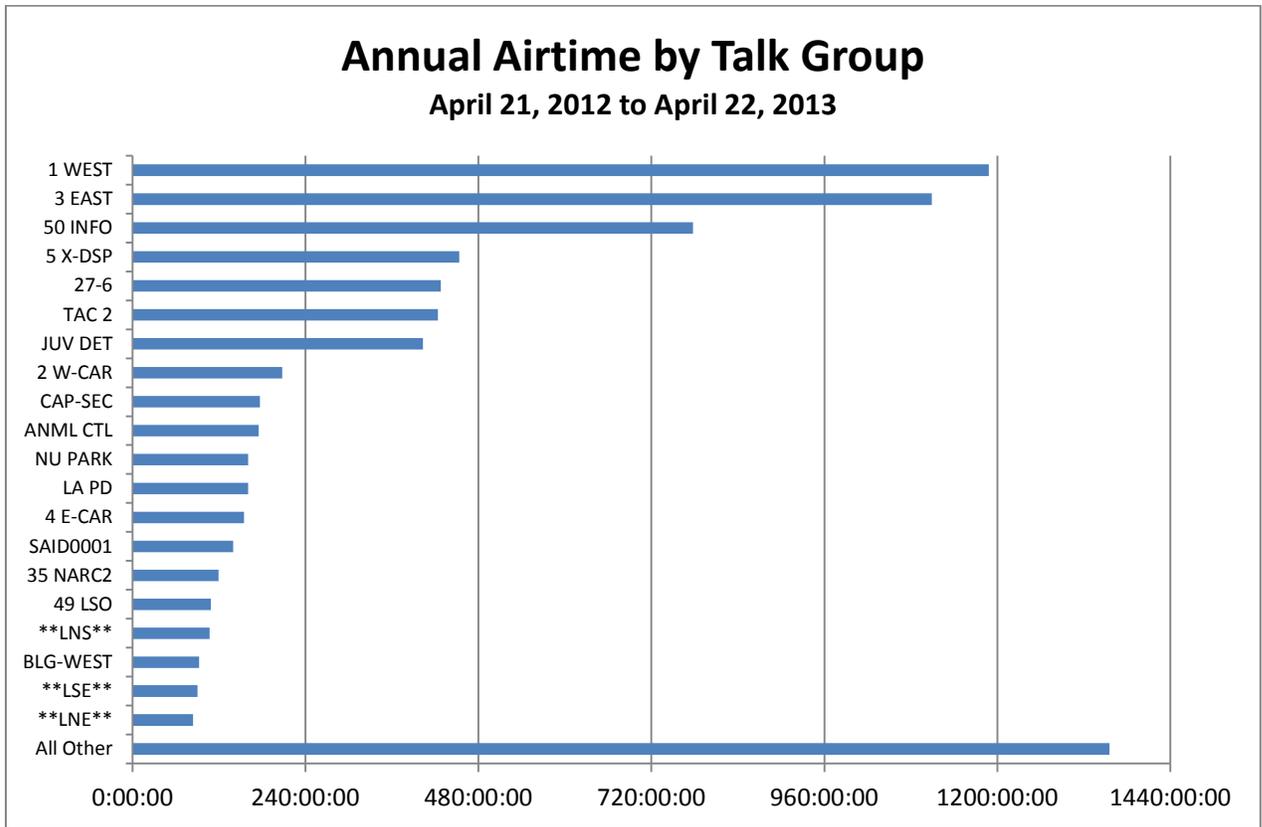


Figure 1: Annual Airtime Use by Talk Group

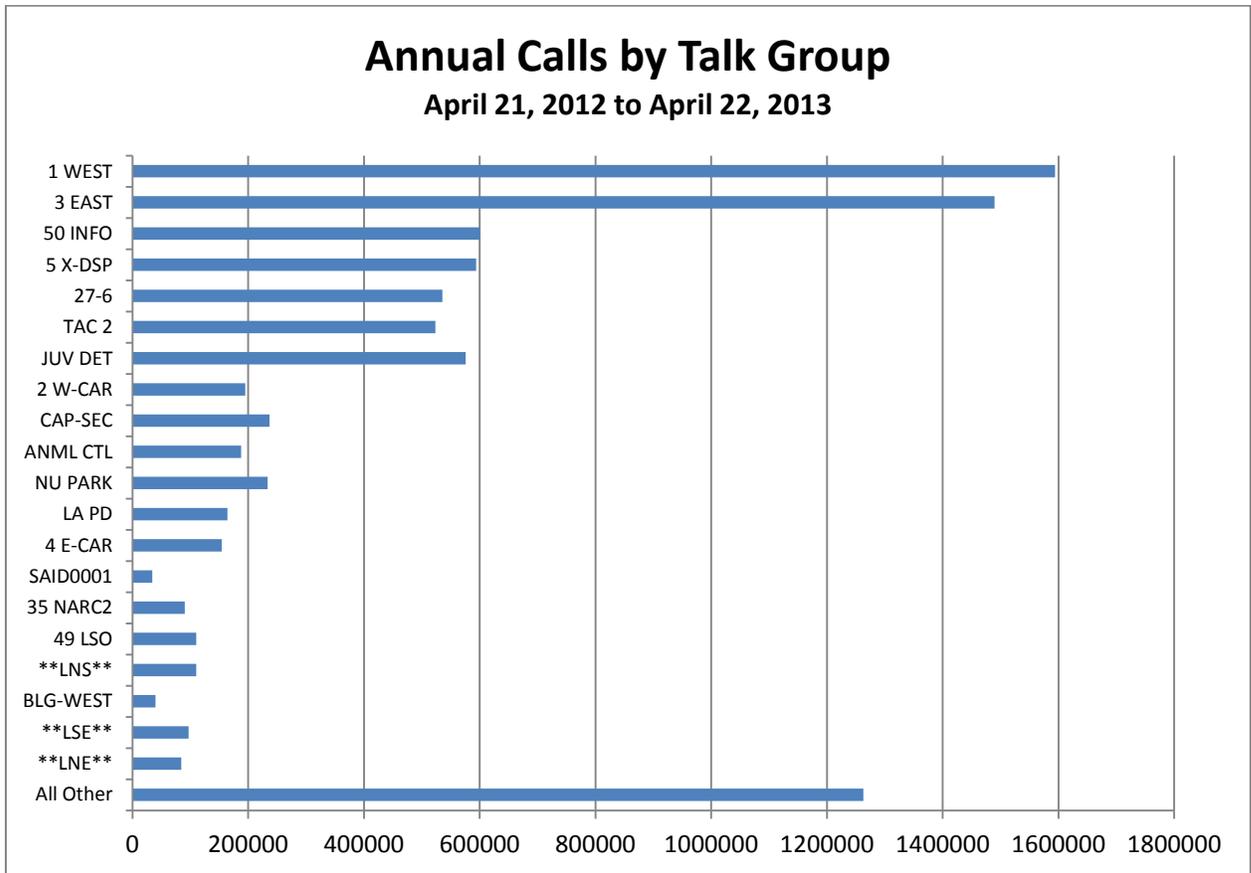


Figure 2: Annual Calls by Talk Group

The following graph represents total % talk time used by hour by day over one week from May 5 to May 11, 2013. The peak was 11.1% between 17:00:00 and 17:59:59 on Friday, May 10, 2013.

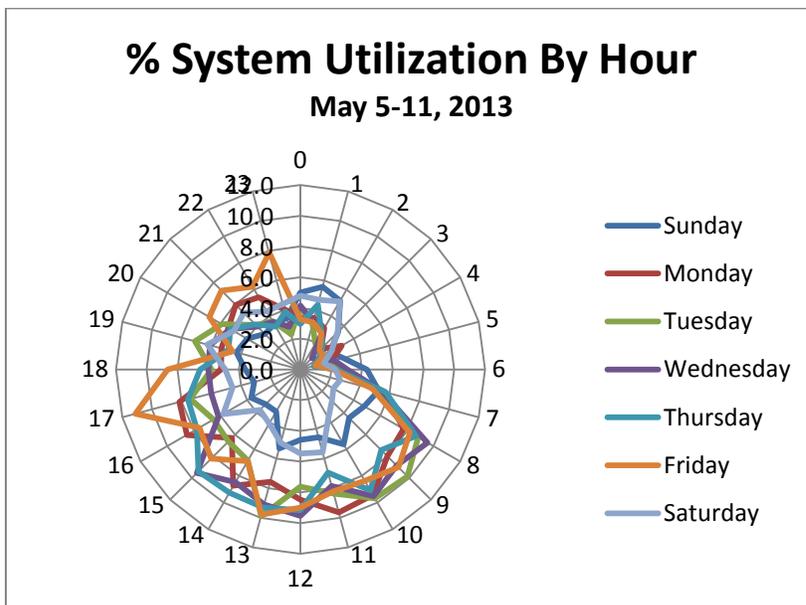


Figure 3: % System Utilization by Hour (May 5-11, 2013)

Game day weekends are expected to be the busiest time for the radio system. The following is a graph of the percentage loading by hour over a 48-hour period⁴ on selected game weekends (home and away) in 2012. The highest loading is found to be 16%.

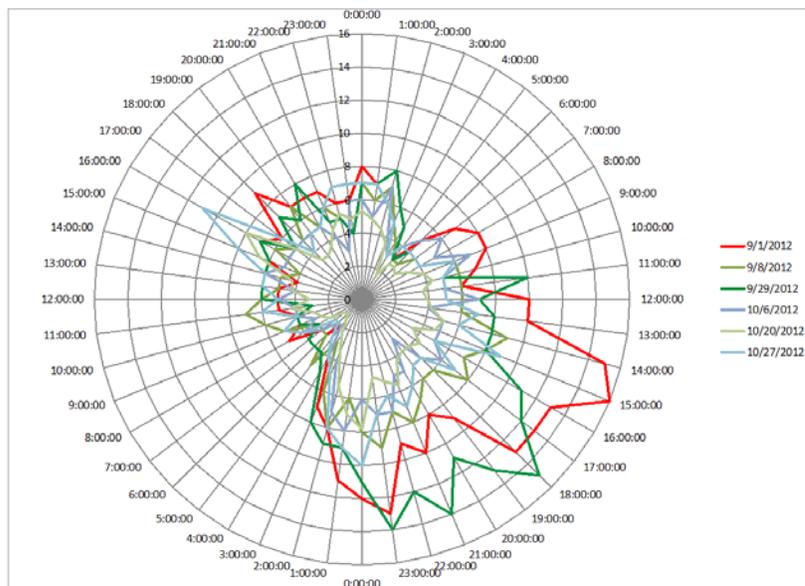


Figure 4: 2012 Game Weekend % System Usage by Hour

Technical Support

All departments are charged an annual fee per field unit (radio) for use, maintenance, etc. This fee funds the Radio Shop and all infrastructure and field unit hardware and support costs. The maintenance fee agencies pay includes any repairs, maintenance, programming or installs for the field units. The fees the agency pays is the only bill they receive from the Radio Shop unless it is an accessory or battery they want to purchase. There are about 3,000 radios in the system. 2,400 units are paid users. The cost per unit charged by the Radio Shop varies by radio type.

- Portable ~\$355/year
- Mobile ~\$370/year
- Control Station ~\$460/year

⁴ The 48 hour period is midnight Saturday morning through Sunday.

EDACS End of Life Concern

The manufacturer has announced that the EDACS system will no longer be supported after 2017. Thus, the City of Lincoln must find a solution, as they will be operating a system on borrowed time with no official support. From the time the decision is made to move forward with an upgraded system, the acquisition, build-out, and commissioning process typically requires 2.5 to 3 years. With the end of life assumed to be December 2017, the acquisition should begin no later than 2014.

Other Radio Communications Systems

The City of Lincoln – Lancaster County has several conventional radio communications systems in use. These systems provide radio communications for City and County systems for Rural Fire, Lincoln Public Schools, and jails. Other systems provide backup for the EDACS system, interoperability with adjacent counties, and common interoperability channels for special events.

Rural Fire

Until 2004/2005, rural fire departments operated on low-band VHF channels but received grant funds to update their voice radio communications systems. Lancaster County Rural Fire intended to move to UHF, but the Radio Shop advised that they should consider a transition to conventional 800 MHz for their voice radio system to allow interoperability with units operating on the City of Lincoln – Lancaster County 800 MHz EDACS network. They moved to 800 MHz when the system was funded by a grant and the Radio Shop agreed to pay for the ongoing support of the new repeaters.

Rural Fire uses geographically split systems—one in the north and the other in the south of the county. They operate identically but use different frequencies. Each geographical system has three 800 MHz conventional analog channels for voice and one VHF channel for paging. Each site has a primary 800 MHz conventional channel and an alternate channel for voice communications. The alternate channel is used if the primary channel does not provide appropriate service in the border areas. North Dispatch and South Dispatch repeaters are positioned at the Military and Jensen Park sites to provide primary radio communications. The 800 MHz portable coverage was lacking at the borders, so an additional repeater was added at Ceresco in the north and Firth in the south (Alt North and Alt South) to use if needed. Both North and South have a TAC repeater located at their respective border sites. The Lincoln Radio Shop is currently transitioning the Rural Fire equipment at the Firth tower to the Sneader tower near Hallam. A map of the fire districts can be found on page 77.

Paging

Paging was moved from low-band VHF to high-band VHF in 2004/2005. Rural Fire utilizes two VHF channels for two paging systems: north (154.35500 MHz) and south (154.29500 MHz). The north paging system uses the Military and Ceresco sites. The south paging system uses the Jensen Park and Firth sites. The equipment at Firth is being moved to the Sneader tower. The same two sites in each north and south zone also extend paging to the respective borders, utilizing two-site simulcast in each zone. Pages are multicast over the 800 MHz dispatch channel and received on 800 MHz receivers at both sites, which feed respective audio delay cards for simulcast transmission.

Using this configuration in addition to paging, the VHF channel retransmits all traffic on the respective dispatch channel. In addition, activity on the Alt Dispatch 800 MHz channel activates a mobile control station at the border sites, which transmits on the Dispatch 800 MHz channel, is received on an 800 MHz receiver on each interior site, and retransmits on the VHF paging channel. The VHF paging channel transmits all 800 MHz voice traffic in each zone, and the 800 MHz dispatch channel transmits alternate 800 MHz dispatch traffic in each zone.

Paging is initiated by LECC. When pages are initiated, the page is sent to the opposite zone of the event to alert responders of the incident, which may not be covered in the zone of the intended page. In this way, first responders carrying pagers can be alerted regardless of their location in the County. As these stations also carry the 800 MHz dispatch and 800 MHz alt traffic, to provide this operation the VHF transmitters must employ a 10-second hang time.

Pager users may have multiple channel pagers and change channels to monitor events in the opposite zone. If the channel is not returned to normal, the pages continue to be heard as long as the pager is in coverage of one of the paging systems.

The LECC Maestro[®] console system is not able to simul-select both paging channels when pages are sent out to the various departments, so they send them serially and then do the announcement using simul-select.

County Siren System

The Department of Emergency Management is charged with the operation of a public warning system and has 117 sirens throughout Lancaster County activated in five zones. Sirens are activated from the Emergency Operations Center at 233 South 10th Street using their Maestro[®] console. Sirens may also be activated at the LECC if they are not able to be activated at the EOC.

Sirens are activated over a VHF radio system operating on a frequency of 155.250 MHz. The primary transmitter is a VHF MASTR III located at south building of the Military Road site. A backup MASTR III station is located at the Hall of Justice building. A test of the siren system is performed on the first Wednesday of each month from the EOC. There is no regularly scheduled siren system test conducted from the LECC.

The siren system is one-way activate only. There is no response or acknowledge from any of the siren locations. The Emergency Director estimates that the cost to implement a two-way system would be about \$500K.

Lincoln Public Schools

Lincoln Public Schools (LPS) have 63 facilities within the City of Lincoln. Several radio systems are used, employing about 500 subscriber radios. The six high schools use about 137 radios on the EDACS system. The remaining units used at elementary and middle schools are conventional 800 MHz. The 12 middle schools and 36 elementary schools use Kenwood radios working from three conventional repeaters designated as Blue, Green, and Orange. The Blue and Orange repeaters are located at the Military site, and the Green repeater is located at the Jensen Park site. The District office uses 6-8 EDACS units and 11-12 Kenwood conventional units. LPS transportation has its own 800 MHz channel, with the repeater located at Military and a control

station at the bus barn. District Facilities Maintenance uses a commercial UHF LTR system and employs 40 to 60 radios.

Network connectivity is provided by the school district between schools. Some schools have BDAs to enhance radio coverage. Schools have expressed the need to speak directly to the LECC or first responders. School Transportation stated that they would like to have automatic vehicle location (AVL).

Mobile Data Systems

- An 800 MHz Open Sky system was used for data on PD cruisers for a short period but was never truly implemented on the software side and is no longer being used. The Open Sky system equipment will be removed sometime in the future. The RF frequencies and associated RF components will be moved to other services for alternate or backup channels.
- Cellular air cards are currently used to provide connectivity.

Other 800 MHz Radio Systems (Site)

- Conventional
 - 800 Interop (Jensen Park)
 - Gage County Interop (Sneider)
 - Lancaster County Sheriff (Arbor Road)
 - Lincoln Fire – Rescue (Arbor Road)
 - Lincoln Public Works (Arbor Road)
 - Lincoln Police Department backup (St. Elizabeth Hospital)
 - North Rural Fire TAC (Ceresco)
 - Saunders County Interop (Ceresco)
 - Sheriff Conventional (Milford)
 - Sheriff Conventional (Seward)
 - Sheriff Conventional (Wilber)
 - South Rural Fire TAC (Sneider)
 - Water (Ashland)
- Jails
 - Lancaster County Jail (BDA indoor only)
 - Lancaster County Corrections Dept. (3801 West O Street)

Other VHF Radio Systems (Site)

- Low Band
 - 39.90 MHz (Military Road)
 - 39.98 MHz (Military Road)
 - 39.82 MHz (Military Road)
- Conventional/Backup
 - VHF Interop (Jensen Park)

- VHF Interop (Arbor Road)
- P25
 - State of Nebraska (Arbor Road)
 - State Government (Military)

Other UHF Radio Systems (Site)

- Interop
 - UHF Interop (Jensen Park)
 - Old UHF Interop (Jensen Park)

900 MHz Radio Systems

- Water Department SCADA

FCC Licenses for Infrastructure

800 MHz Trunking System Channels

The channels used in the EDACS system are made up of City of Lincoln – Lancaster County licensed spectrum. The following repeater channels are licensed on call sign WNDX299 at the Military Road and Jensen Park sites.

WNDX299					
Frequency ID	Location	Frequency (MHz)	Antenna Height (ft)	Output Power	Max ERP
21	Military Rd	854.0125	341	100W	263W
22	Military Rd	854.1875	341	100W	263W
23	Military Rd	854.5875	341	100W	263W
24	Military Rd	854.6875	341	100W	263W
1	Military Rd	856.2125	341	100W	263W
2	Military Rd	856.4625	341	100W	263W
3	Military Rd	856.7125	341	100W	263W
4	Military Rd	856.9625	341	100W	263W
5	Military Rd	857.2125	341	100W	263W
6	Military Rd	857.4625	341	100W	263W
7	Military Rd	857.7125	341	100W	263W
8	Military Rd	857.9625	341	100W	263W
9	Military Rd	858.2125	341	100W	263W
10	Military Rd	858.4625	341	100W	263W
11	Military Rd	858.7125	341	100W	263W
12	Military Rd	858.9625	341	100W	263W
13	Military Rd	859.2125	341	100W	263W
14	Military Rd	859.4625	341	100W	263W
15	Military Rd	859.7125	341	100W	263W
16	Military Rd	859.9625	341	100W	263W
21	Jensen Park	854.0125	492	100W	226
22	Jensen Park	854.1875	492	100W	226
23	Jensen Park	854.5875	492	100W	226
24	Jensen Park	854.6875	492	100W	226
1	Jensen Park	856.2125	492	100W	226
2	Jensen Park	856.4625	492	100W	226
3	Jensen Park	856.7125	492	100W	226
4	Jensen Park	856.9625	492	100W	226
5	Jensen Park	857.2125	492	100W	226
6	Jensen Park	857.4625	492	100W	226
7	Jensen Park	857.7125	492	100W	226
8	Jensen Park	857.9625	492	100W	226
9	Jensen Park	858.2125	492	100W	226
10	Jensen Park	858.4625	492	100W	226
11	Jensen Park	858.7125	492	100W	226
12	Jensen Park	858.9625	492	100W	226
13	Jensen Park	859.2125	492	100W	226
14	Jensen Park	859.4625	492	100W	226
15	Jensen Park	859.7125	492	100W	226
16	Jensen Park	859.9625	492	100W	226

Note: Five EDACS stations using a subset of five primary system 800 MHz channels are implemented as backup at the Arbor Road location. E&A was not able to find these frequencies licensed at this site.

Conventional 800 Channels

WNDX303					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Ashland	854.9625	FB2	70	120
1	St. Elizabeth	855.2375	FB2	100	462
3	Arbor Rd	855.4625	FB2	100	229
2	Arbor Rd	855.7375	FB2	100	229
1	Arbor Rd	855.9875	FB2	100	229

WQAS840 – Rural Fire-Rescue – North					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	Military Rd	851.7500	FB2	100	225

WQAY625 – Rural Fire-Rescue – North Alt					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	Ceresco	853.1875	FB2	100	275

WQAY622 – Rural Fire-Rescue – North TAC					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	Ceresco	852.2500	FB2	100	280

WQAU827 – Rural Fire-Rescue – South					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	Jensen Park	851.8125	FB2	100	220

WQAS235 – Rural Fire-Rescue – South Alt					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	7480 Olive Creek Road	853.1625	FB2	100	211
1	Sneader	853.1625	FB2	100	230

WQAU765 – Rural Fire-Rescue – South TAC					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	7480 Olive Creek Road	851.9750	FB2	100	211
1	Sneader	851.9750	FB2	100	230

WPYS986 – 8TAC5					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
2	Military Rd	851.3000	FB	100	334

WQAY624 – LPS					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
3	Military Rd	852.0625	FB2	100	250
4	Military Rd	852.3375	FB2	100	250
2	Jensen Park	852.3375	FB2	100	250

WQAZ575 – LPS					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Military Rd	852.7750	FB2	100	166

WQAZ577 – Public Safety Data (OpenSky platform) - Unused					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
3	Jensen Park	852.0875	FB2C	75	150
3	Military Rd	853.1000	FB2C	75	150
4	Military Rd	853.4125	FB2C	75	150
5	Military Rd	8536875	FB2C	75	150

Conventional UHF Channels

KNAT464 – Lincoln Public Schools					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Lincoln East HS	463.7000	FB	110	200

WPZN824 – UHF Interop					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Jensen Park	460.2000	FB2	100	344

Conventional VHF Channels

KVN663 – Rural Fire-Rescue (unused)					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Military Rd	39.82	FB	100	100
1	Bryan Medical Ctr East	39.82	FB	100	100
2	Military Rd	39.98	FB	100	83

KZE694 – School Buses					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Lincoln East HS	155.2200	FB	100	200

WNSI787 – Paging					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Military Rd	155.8200	FB	100	221

WPYG364 – Rural Fire Paging					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Fire Station 12 ⁵	154.1300	FB	100	201

WPZK789					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Hall of Justice	159.2100	FB2	110	234

WQAE795 (Rural Fire Paging)					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Ceresco	154.2950	FB	100	300
2	Ceresco	154.3550	FB	100	300

WQAF254 – Rural Fire Paging					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	7480 Olive Creek Road	155.2950	FB	100	229
1	4500 West Pella Road	155.2950	FB	100	197
1	Sneader	155.2950	FB	100	218
2	7480 Olive Creek Road	154.3550	FB	100	229
2	Sneader	154.3550	FB	100	218

WQAG261 – Rural Fire Paging					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Military Rd	154.2950	FB	100	250
2	Military Rd	154.3550	FB	100	250

WQAG312 – Rural Fire Paging					
Frequency ID	Location	Frequency	Station Class	Output Power	Max ERP
1	Jensen Park	154.2950	FB	100	250
2	Jensen Park	154.3550	FB	100	250

⁵ License is currently being moved to Sneader.

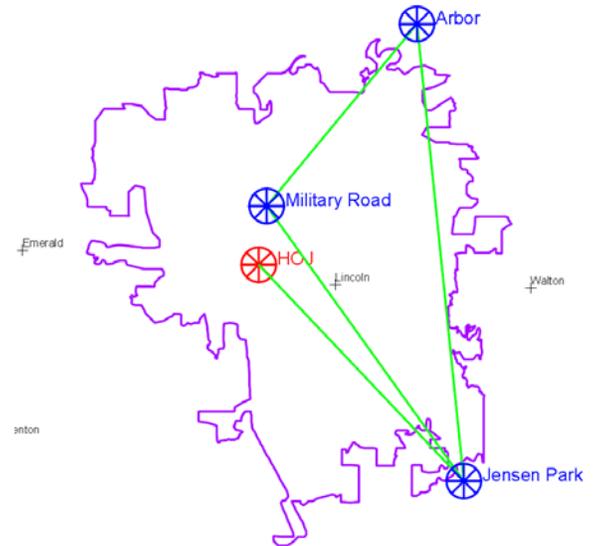
Microwave, Fiber and Network Connectivity

There are four microwave paths that interconnect the tower sites used in the radio communications system with the Lincoln Emergency Communications Center in the lower level of the Hall of Justice.

A microwave ring interconnects Military Road, Jensen Park, and the Arbor Road sites consisting of two 6 GHz paths and one 10 GHz path (Arbor – Military). The ring provides a redundant backhaul system to ensure reliability and performance. The path from Jensen Park to the Hall of Justice provides interconnect to the radio dispatch console system. Not shown is a 6 GHz link from the Arbor Road tower to Ashland Water.

Another 6 GHz microwave path is now operational from the Arbor Road tower to the Sneider tower.

A fiber link connects the south Military shelter to the LECC. Backup 911, the EOC, and the Radio Shop are linked to the LECC via the City of Lincoln I.S. fiber network to provide Maestro IP Console interface for each location.



Physical Facilities

Towers

The Jensen tower was built in 1997. It is a guyed tower with a height of 492.1 feet (150.0 m). It is one of the two primary 20-channel EDCAS sites and is equipped with stations for Rural Fire Paging, Lincoln Public Schools, and interoperability channels. The Jensen Park property was originally donated to the County for recreational use.

The Military tower was completed in late 2000. It is a self-supporting tower with a height of 359.9 feet (109.7 m). It is one of the two primary 20-channel EDCAS sites and is equipped with stations for Rural Fire Paging, Lincoln Public Schools, and interoperability channels. The Military site is in need of one new shelter. There are multiple cellular antennas at the Military site.

The Arbor Road tower was completed in mid-2006. It is a self-supporting tower with a height of 359.9 feet (109.7 m). This site has been equipped with station equipment to provide a five-channel backup for the EDACS system and conventional 800 MHz backup channels for EDACS system users.

The Sneader (Hallam) tower was completed in mid-2012. It is a self-supporting tower with a height of 359.9 feet (109.7 m). This site has been equipped with station equipment to provide Rural Fire coverage of the southern portion of the county.

Dispatch Center (LECC)

The dispatch center is equipped with 10 Maestro[®] consoles in custom furniture configuration in the lower level of the Hall of Justice. A VPI 96-channel logger records various talk groups plus selected channels at each position and 911 lines. An additional dispatcher comes on duty at 3:00 PM, thus splitting duties for law. Dispatch is CALEA certified. The dispatch space is 33'6" x 36'9" with almost 8' ceiling. The Dispatch Equipment Room is 13'9" x 25'.



The Dispatch Equipment Room (DER) has unique common HVAC with Dispatch with return air flowing to the DER. Three Liebert HVAC units in the DER and one in dispatch are all using common under-floor distribution. This method of cooling continues to cause moisture problems in the DER and does not meet FEMA or NFPA guidelines for cooling of equipment rooms.

The equipment ground system does not seem to be bonded to the electrical building ground. Dispatch power is supplied by mains, single UPS, and dedicated generator with connection for external backup generator.



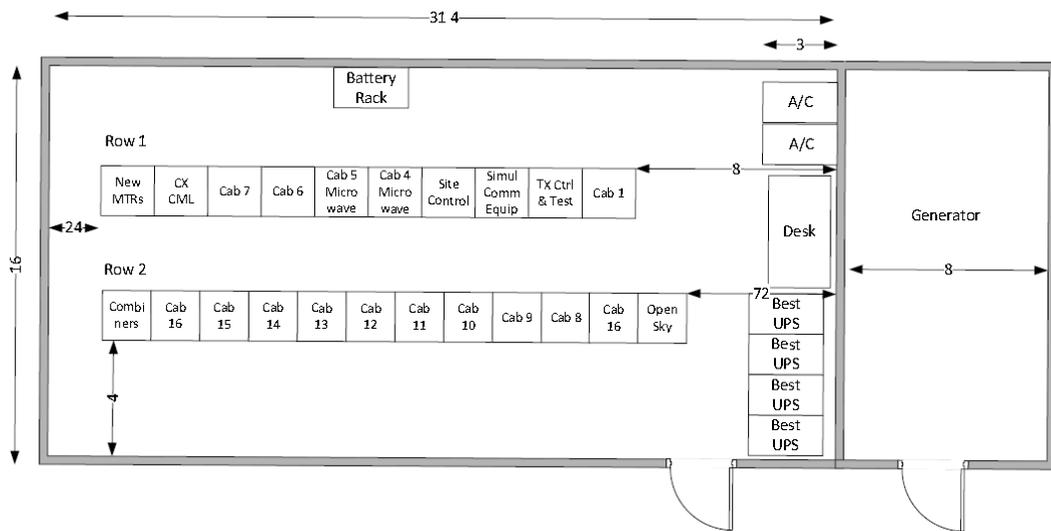
Dispatch console positions are equipped with backup control stations. Additional RF equipment is located in the penthouse. All antenna system transmission lines run to the roof. Antennas including the microwave antenna to Jensen Park are mounted on a small monopole and several roof skids.



Jensen Park Site

The Jensen Park site was constructed in 1997 and is located about one half mile south of Cheney and one half mile east of S. 84th Street just outside the City of Lincoln boundary. The nearly rectangular compound dimensions are about 95' x 40'. The compound contains one guyed tower and a single equipment shelter. Dimensions of the shelter are 31'4" x 16' with a 10' ceiling. The generator area is 8'3" x 16'. Two 500-gallon LP fuel tanks are located about 70 feet southeast of the shelter. Fuel runs underground to a regulator prior to entering the generator side of the shelter. Some rust was found on clamps used on the guy anchors.

The Jensen Park tower is 492 feet in height. The Jensen Park site is 278 feet higher than the Military Road site, and the tower is 151 feet higher. The antennas at Jensen Park are 429 feet higher than the Military Road site. The antennas at Military Road are at a height 68 feet above ground level at Jensen Park, and any signals reaching this area are blocked by trees in the area. Jensen Park signals will easily propagate beyond the Military Road site.



North ^

There are two rows of cabinets (22 total). Each row powered by its own UPS. Power and equipment ground have no visible bond which is required per the National Electrical Code.

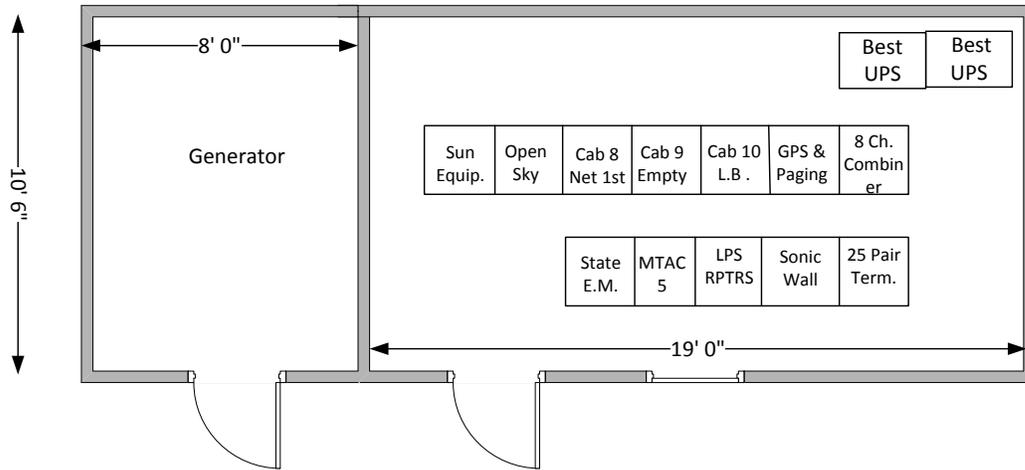
Military Road

The Military Road site was constructed in 2000 and is located about .2 miles east of North 10th Street and .1 miles north of Military Road. The rectangular compound dimensions are about 110' x 80'. The compound contains one self-supporting tower and four equipment shelters. The two shelters closest to the tower belong to the City of Lincoln and house the City's system equipment. The other two shelters contain cellular equipment. Each of the City shelters houses its own backup generator.

The Military Road tower is 370 feet in height. The Military site is 278 feet lower than the Jensen Park site.



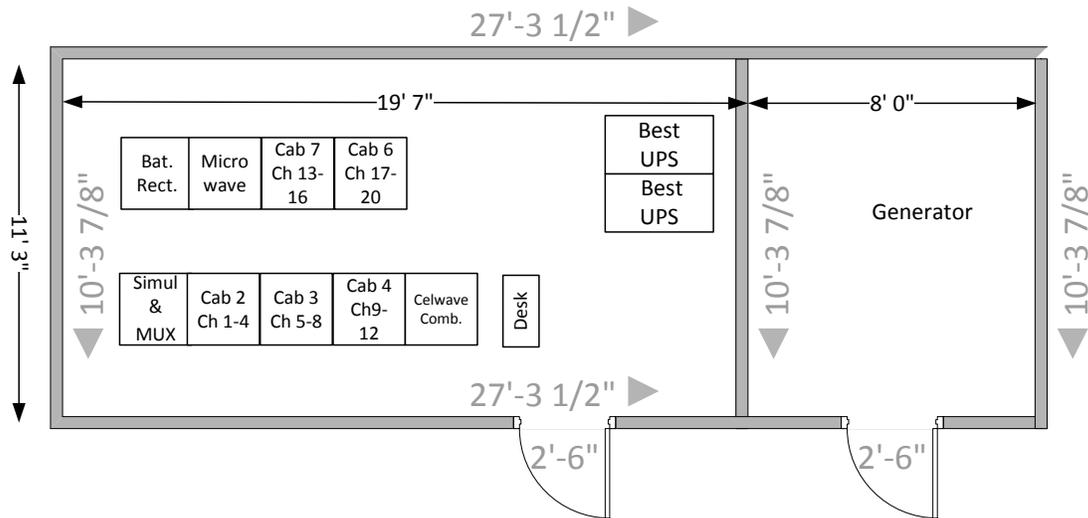
Military South Building (Old)



The south shelter is the older building and was moved to this location when the tower was constructed. The inside dimensions are 10'6" x 19' with a 10' ceiling. The building is the older of the two and is in poor shape. The west wall of the shelter is compromised. This shelter houses primarily paging, 800 MHz conventional, and Open Sky system equipment. One Best UPS system provides interim power in case of commercial power interruption.



Military North Building (New)



The north shelter was installed when the tower was constructed. The inside dimensions are 11'3" x 19'7" with a 10' ceiling. There are two rows of cabinets (nine total) that support the 20-channel EDCACS system. One Best UPS system provides interim power in case of commercial power interruption.

Fire Station 14 – Backup Dispatch

The current space used as backup is 25' x 39'9" with a 7' 8" ceiling. There is an expansion area of 26' x 39'9" in an adjacent space. There are nine positions, and six Zetron consoles are installed. Three Zetron consoles are set up for fire and three are set up for law. The remaining three positions are call-taker only positions. The fire station is built over a natural pond, so wet conditions persist.





Arbor Road

The backup EDACS system uses the lowest five logical channels (channels 1-5) of the 20-channel EDACS system. 911 would access the backup system using the M7100 radios at their console positions. Originally the five-channel system was to be used on a trailer with a crank-up tower. The Arbor tower was to cover I80 toward Omaha. The Nebraska State system is on this site. The five-channel EDACS system must be enabled manually if needed, and only for long-term use. Field units are programmed with conventional channels for short-term use.



The Arbor Road tower is installed on power company property adjacent to a large substation with two wind generators to the south and a jet engine generating station a half mile to the ENE.

Bypass operation on the 20-channel system includes 10 channels from Jensen Park – site 2 (channels 1-10) and 10 channels from Military – site 1 (channels 11-20). The microwave from 911 goes to Jensen Park (site 2), but all field units are programmed for site 1, so in bypass mode the consoles are disabled and operators use the control station radios for communications. If the Military site were to go down, the majority of the field units would no longer work in the bypass mode. The Jensen Park site would need to be reprogrammed for site 1. The Sheriff radios are programmed to scan if they lose site 1.

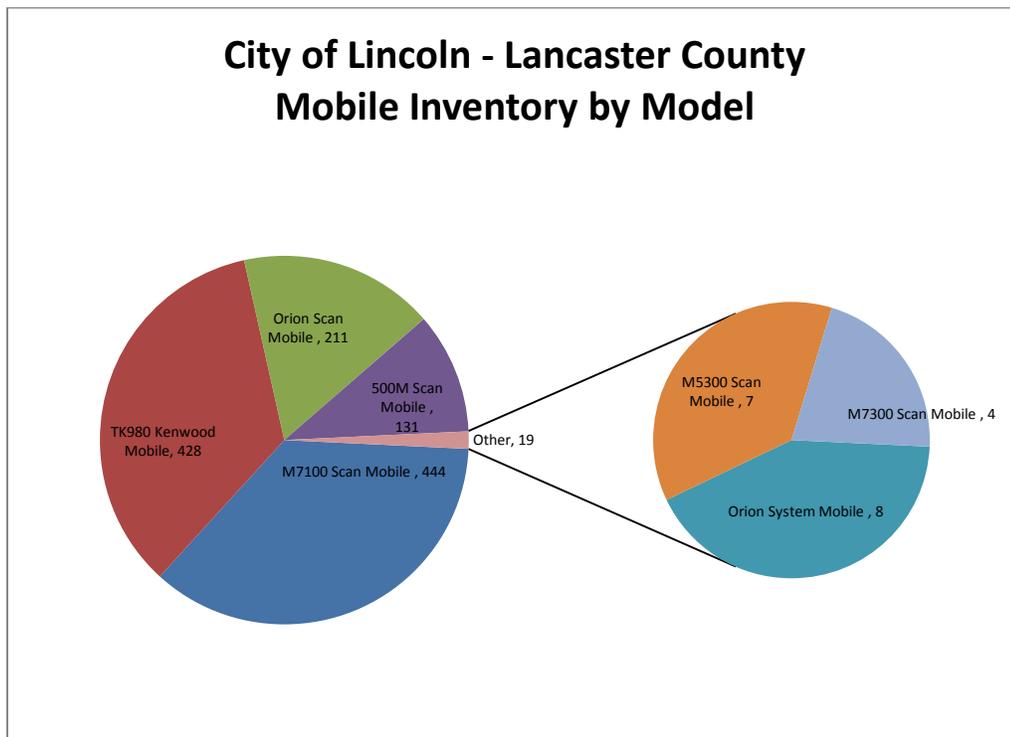
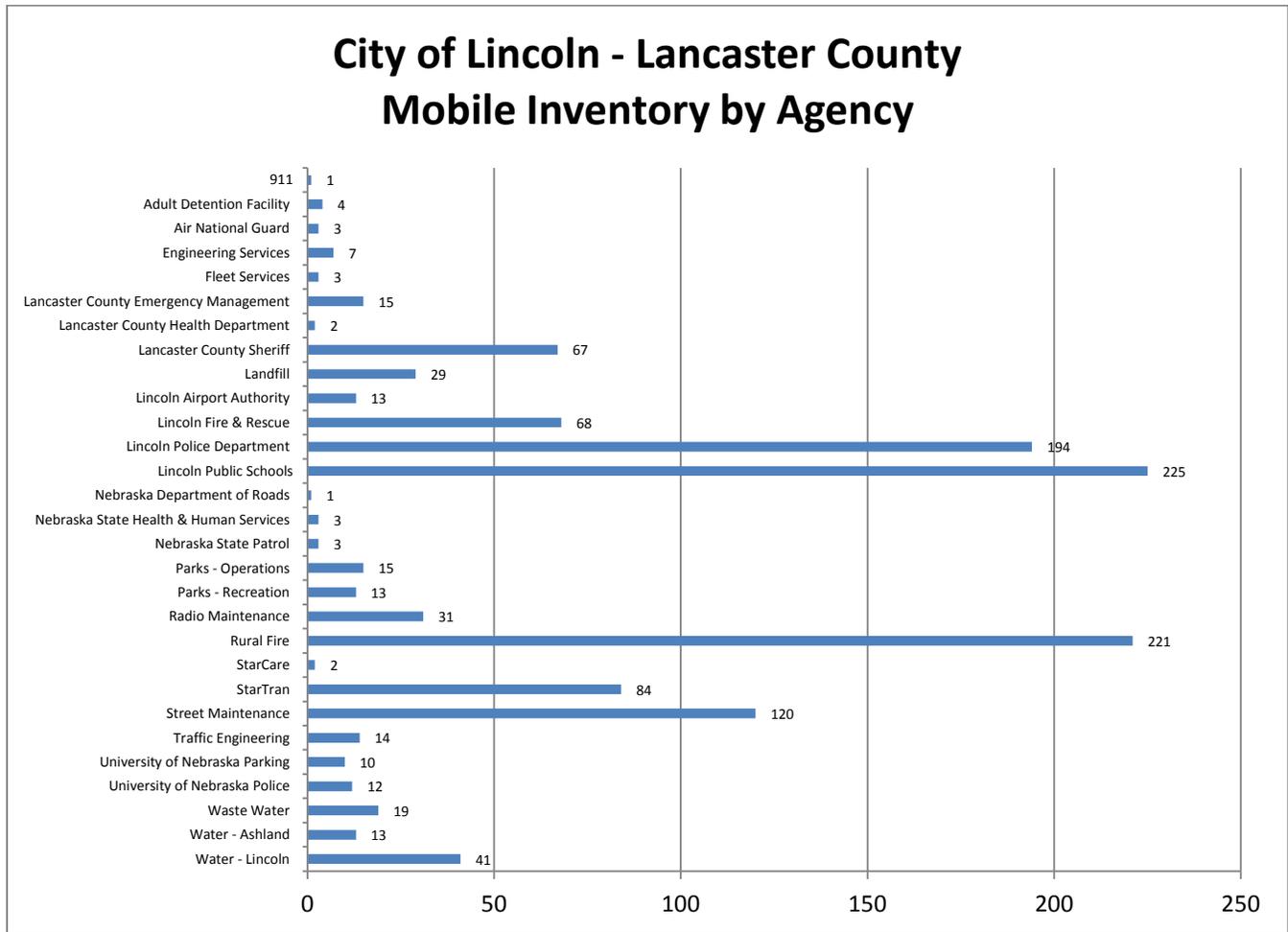
Field Units

Agencies within City of Lincoln – Lancaster County are equipped with various models of mobile, portable, and control station radio units. The detailed inventory can be found on page 69. Some units are equipped with P25 capability. Although the majority of the field units operate on the EDACS radio system, Rural Fire and many of the Lincoln Public School units are Kenwood models, which are not sourced from or maintained by the Lincoln Radio Shop. These non-Harris radios are not capable of operation on the EDACS network.

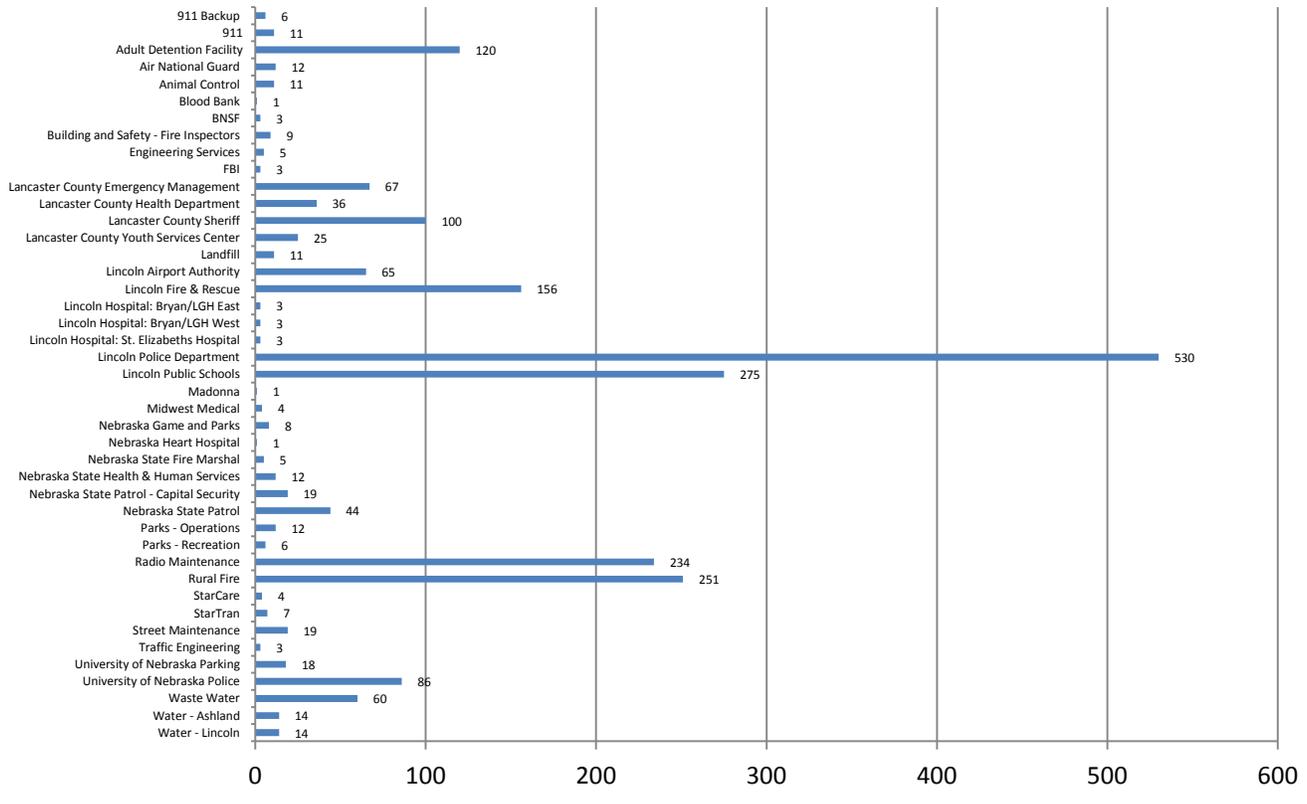
Below is a summary of the user terminal inventory. The majority of the units in this inventory are radio units consisting of mobiles, portables, and control stations. The inventory also includes the LECC radio dispatch consoles and paging encoders used by Rural Fire.

User Terminal Inventory	
Building & Safety	9
Emergency Management	84
Health Department	51
Hospitals	24
Lancaster Co. Sheriff	156
Lincoln Fire & Rescue	231
Lincoln Police Department	896
Lincoln Public Schools	500
Park & Rec Department	40
Public Works	481
Radio Maintenance	49
Rural Fire	496
State Agencies	109
University of Nebraska	127
Youth Services Center	26
Others	95
Spare	272
Total	3646

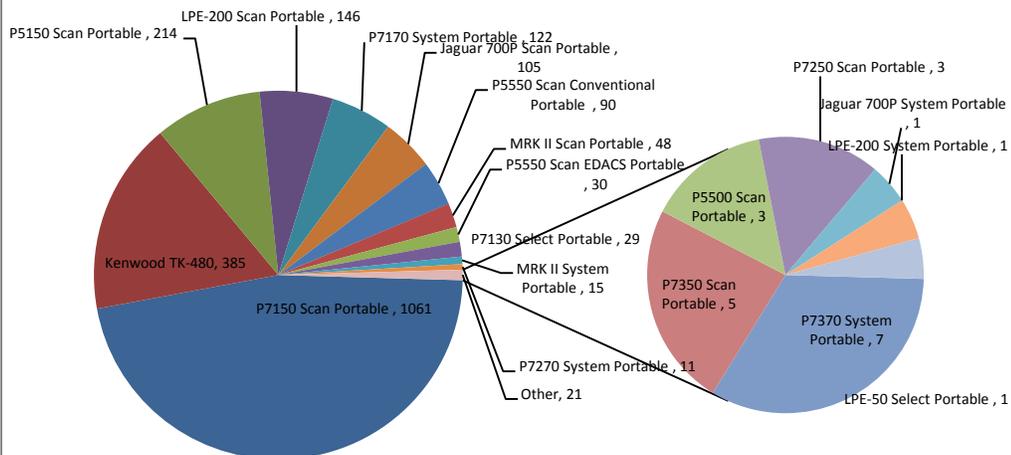
The following graphs break down the field unit inventory by mobile, portable, and control station for agency and by model. The inventory consists of EDACS and conventional radio equipment as provided to Elert & Associates.



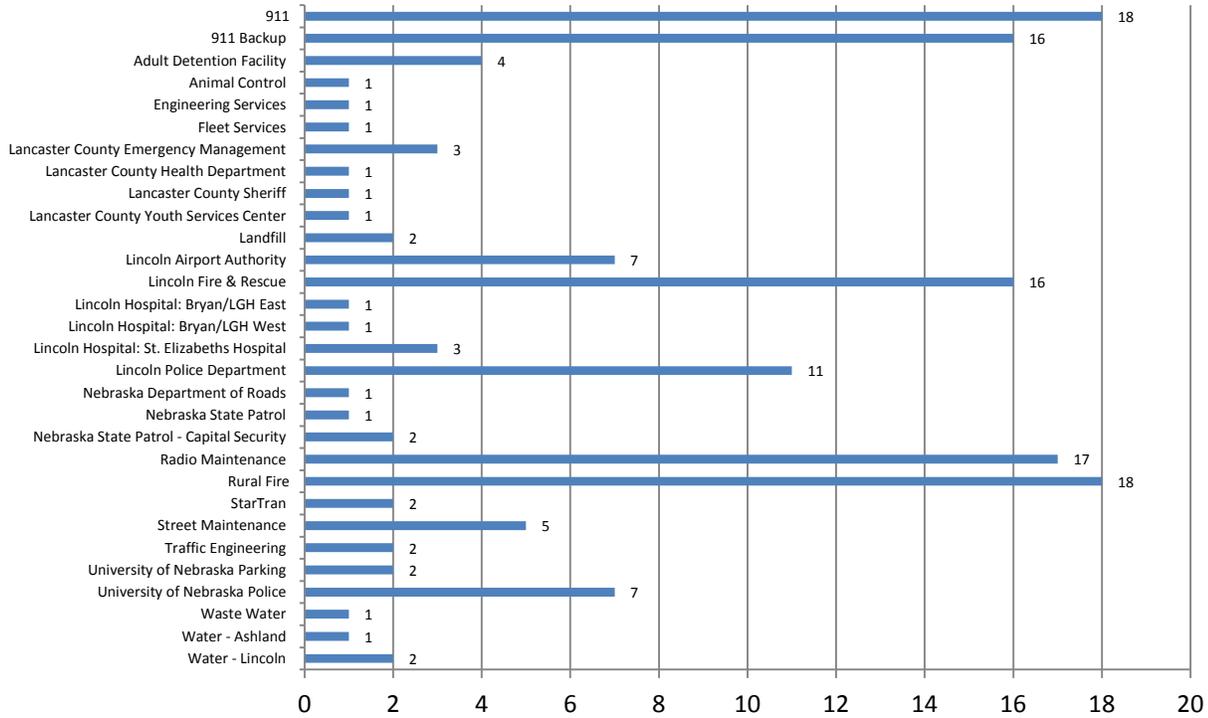
City of Lincoln - Lancaster County Portable Inventory by Agency



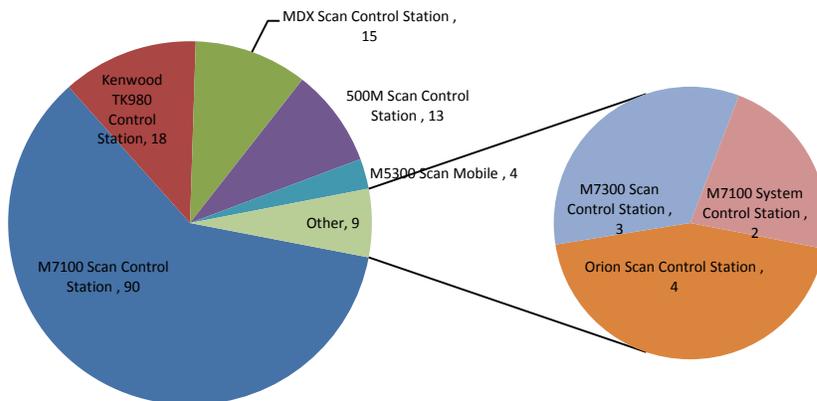
City of Lincoln - Lancaster County Portable Inventory by Model



City of Lincoln - Lancaster County Control Station Inventory by Agency



City of Lincoln - Lancaster County Control Station Inventory by Model



Propagation Prediction Simulations

City of Lincoln – Lancaster County Terrain

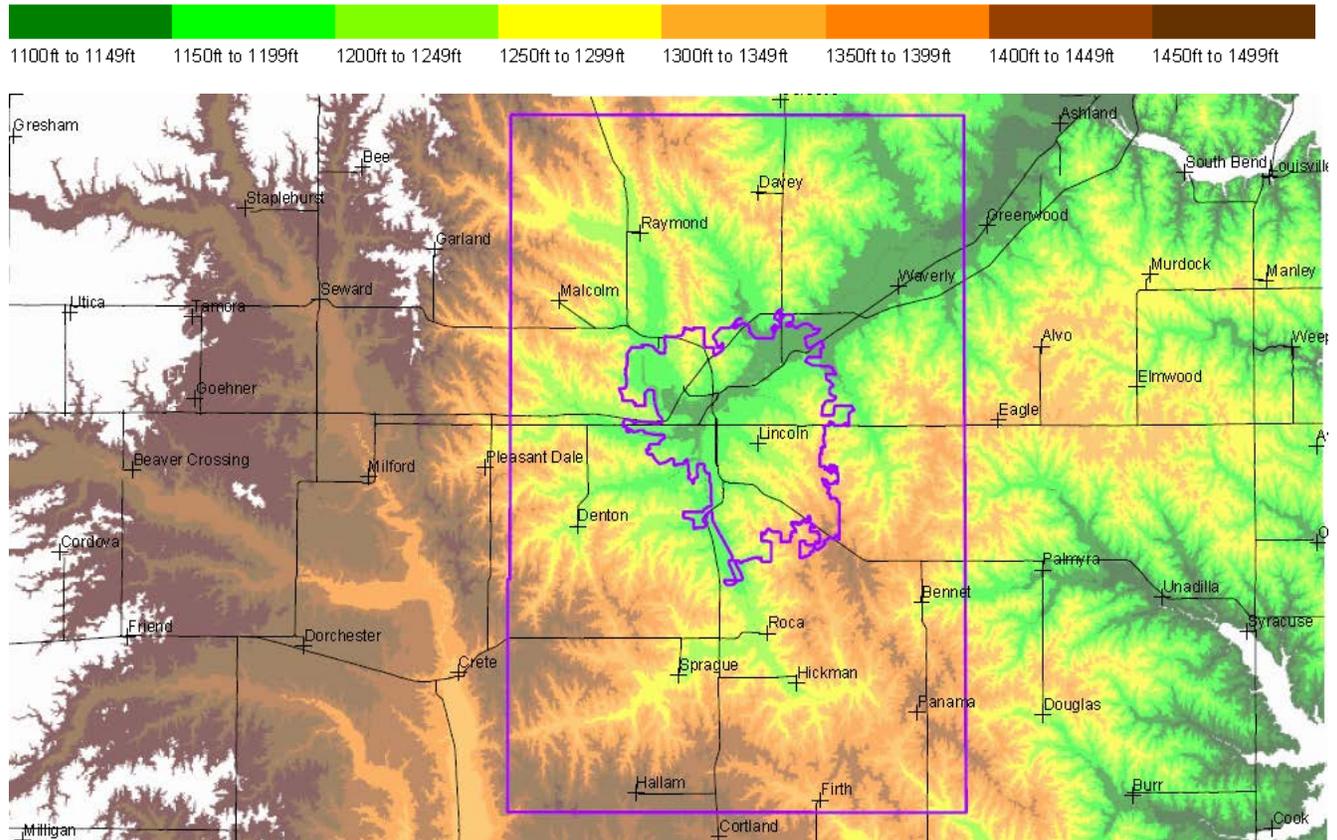


Figure 5: Lancaster County Terrain

Lancaster County terrain varies from a low point of 329 meters (1,080 feet) on Salt Creek in northeast Lancaster County to 463 meters (1,521 feet) in northwest Lancaster County. The lowest elevations in the county run southwest from the Cass County border in the northeast into the Lincoln area, with coulee type terrain extending perpendicular in both directions at various points along the way and several directions in the Lincoln area. Generally the terrain rises to the west, north, south, and southeast around the City of Lincoln.

Some terrain in Lancaster County and in the City of Lincoln impacts the ability for a field unit to reach a repeater site or a repeater site to reach a portable. As there are two sites in the current EDACS system, only one successful RF path to a field unit is necessary for communication, but the maximum number of paths is limited to the number of sites available. The variability of terrain increases the chance that there are no successful RF paths to a site. To increase the reliability due to terrain, additional sites need to be considered.

The ground elevation of the Jensen Park site is 278' higher than the Military Road site. Unlike other areas in Lancaster County, the change in elevation between sites is relatively gradual. Other areas in the County vary hundreds of feet over a range of a few miles, expanding the areas of unacceptable coverage performance.

City of Lincoln – Lancaster County Land Use

Figure 6 shows the land use (also known as clutter in propagation prediction) as defined in the propagation program for Lancaster County. The key to the right shows the land use employed by the prediction program to calculation coverage. Most of the City of Lincoln is identified as residential, mixed urban, commercial/industrial, and transportation. The majority of the county is identified mostly as agricultural and rangeland.

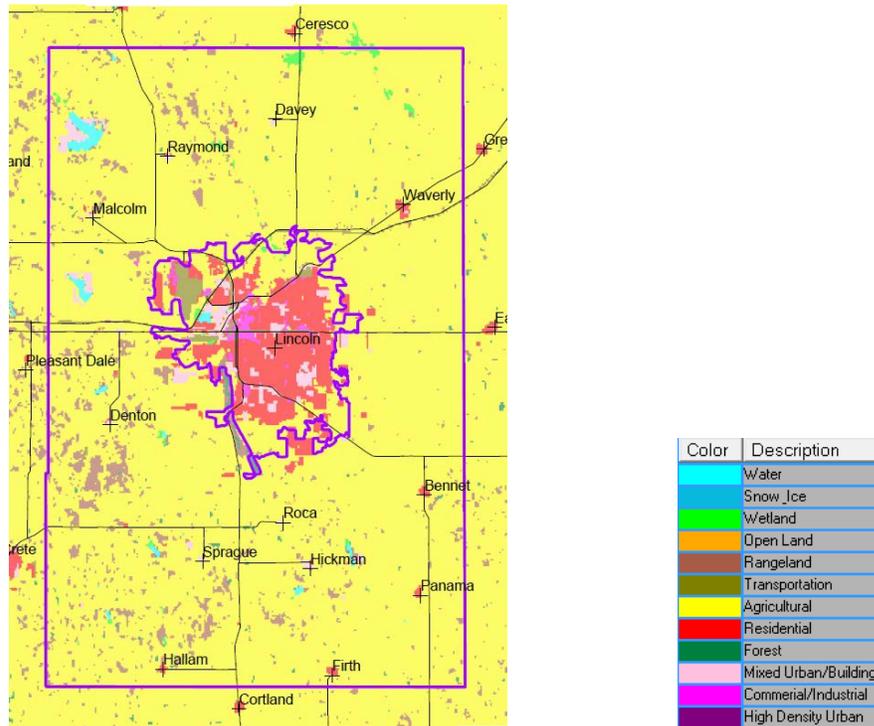


Figure 6: City of Lincoln – Lancaster County Clutter

Coverage Predictions

Coverage predictions are estimates of signal level using models based on actual field performance data. The variables include the antenna height, radio RF power, receiver sensitivity, terrain elevation, and clutter. Voice system calculations used TSB-88 testing guidelines to determine the minimum signal levels for predictions. Analog voice systems used attenuation factors that equate to a digital audio quality (DAQ) level of 3.4⁶. Reliability is also factored into the calculations to account for variability. The minimum level for reliable portable coverage is estimated to be -89 dBm. This figure includes a 95% reliability factor of 5.9dB. For new systems, the infrastructure is designed to provide this level of signal 95% of the time over 95% of the area.

⁶ The definition of all DAQ levels may be found in Appendix 5 – Delivered Audio Quality (DAQ) on page 76.

The prediction uses the clutter information (see Figure 6) in the calculations to estimate the signal level. The model does not know if a building is blocking or reflecting signals, so the performance could be quite different in actual operation.

The amount of attenuation varies based on the indoor attenuation values embedded in the clutter model. A common attenuation value for residential areas is about 8dB, and for a commercial building, 15dB. Hardened structures and large structures may have loss factors that exceed 30dB or a factor of one-thousandth of the signal found on the outside of the building.

Prediction models use different criteria for calculating mobile and portable performance. Models can predict outbound to field unit (talk-out) and inbound to infrastructure (talk-back). For portables models can also predict outdoor and indoor performance. Indoor performance uses environment information associated with the clutter database that inserts an additional in-building loss into its calculations.

Portable outdoor talk-out model results are designated in the following predictions as portable talk-back outdoor (PTOO). Indoor predictions would be designated as PTOI. For a mobile talk-in it would be designated as MTBO. Sometimes mobile prediction descriptions drop the ‘O’ and are designated as MTB as mobile predictions are always considered outdoors.

Below is a key for interpretation of the coverage predictions that follow. For portable operation, adequate coverage is usually achieved in yellow and green areas. The yellow represents outdoor coverage and the green is representative of operation from within a wood framed home with 8dB attenuation. As one moves away from the repeater antenna site, each color change reflects a reduction in received signal level. A portable may be able to work in the orange signal level but the user may have to make minor adjustments to their position or the direction they face to be able to communicate.

The marginal level below (orange) ranges from -89 dBm/-92 dBm (at the transition from yellow to orange) to -101dBm/-104 dBm (at the transition from orange to red) and represents the antenna / body loss factor. The orange to red transition represents the level of signal to provide an equivalent level for a DAQ of 3.4. The red area is marginal for mobile operation but provides only occasional performance for a portable. Areas in gray (< -114 dBm/-115 dBm) are below the receiver’s effective sensitivity level. Mobiles may work in this area, but portables have little chance. The red and gray areas should not be depended upon for public safety service.



800 MHz Portable Performance levels per TSB-88 for DAQ Equivalent of 3.4					
Analog	-114 dBm	-101 dBm	-89 dBm	-81 dBm	
Digital	-115 dBm	-104 dBm	-92 dBm	-84.dBm	
	C_s/N	C_r/N (Loss for DAQ 3.4)	Antenna / Body Loss (-12dB)	In-Building Loss (-8dB)	
Portable Environment	Out of Range	Hill Top	Outdoor	Light In-Building	
Mobile Environment	Hill Top	Outdoor			

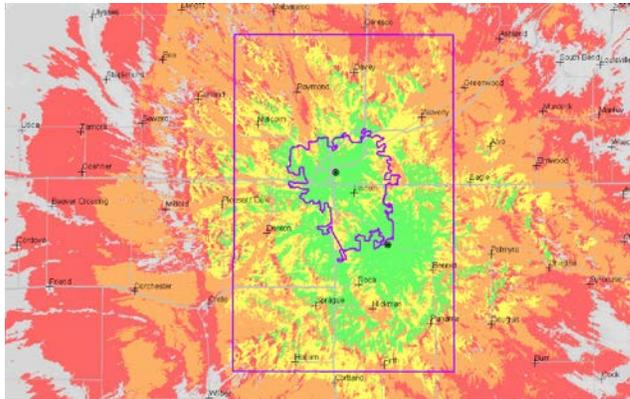


Figure 7: 800 EDACS 2-Site PTOO 61.1% County

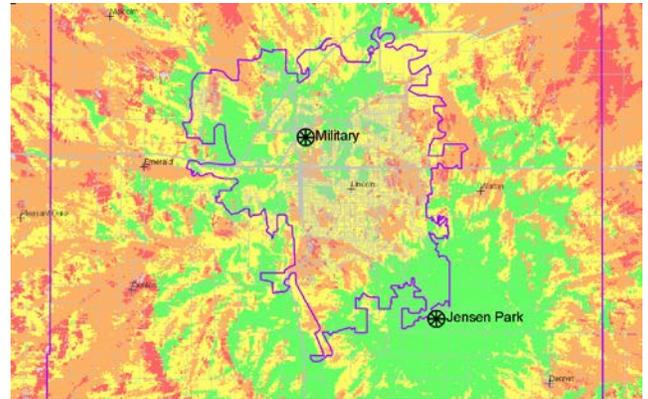


Figure 8: 800 EDACS 2-Site PTOI 77.2% City

The above predictions are of the predicted portable outdoor (Figure 7) and portable indoor (Figure 8) system performance for the current 20-channel EDACS system using the Military Road and Jensen Park towers.

Talk-out performance (repeaters to portable) for a signal level from -89dBm or greater outdoors (yellow and green above) is predicted to cover 61.1% of Lancaster County and 92.4% the City of Lincoln (Figure 7). Residential indoor coverage (8dB) is predicted to be 77.2% of the City (Figure 8).

Portable Environment	Out of Range	Hill Top	Outdoor	Light In-Building
Mobile Environment	Hill Top	Outdoor		

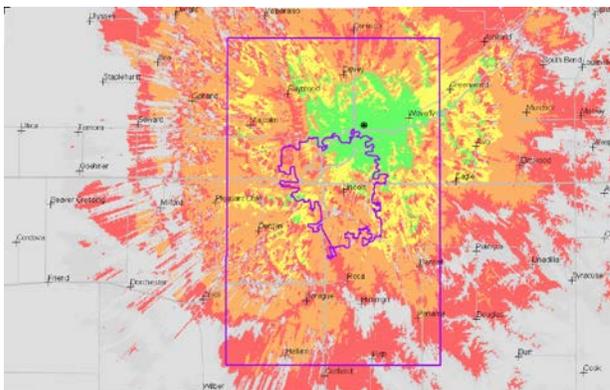


Figure 9: 800 EDACS BU PTOO 27.4% County

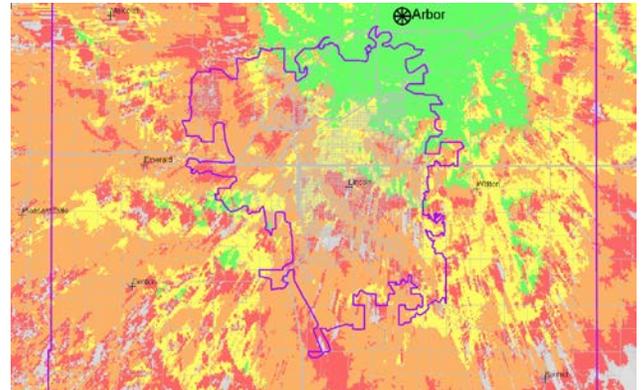


Figure 10: 800 EDACS BU PTOO 38.0% City

Arbor Road is the backup site for the current EDCAS trunking system. The above predictions estimate the portable talk-out performance at a level of -89dBm or greater from Arbor Road to be 38.0% of the City of Lincoln (Figure 10) and 27.4% of Lancaster County (Figure 9).

Below are predictions for Rural Fire 800 MHz voice and VHF paging systems. The sites used in the north and the south are bundled to represent the total coverage available to north and south Rural Fire areas.

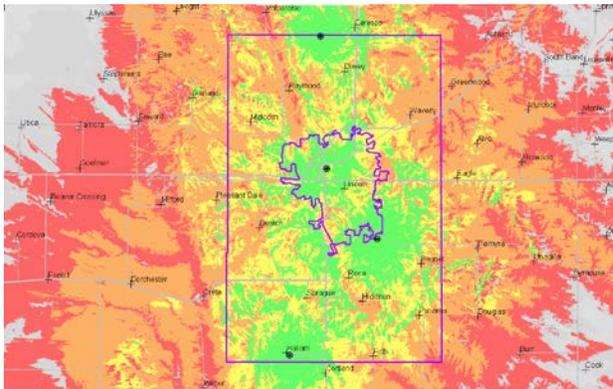


Figure 11: 800 Rural Fire PTOO 65.6% County

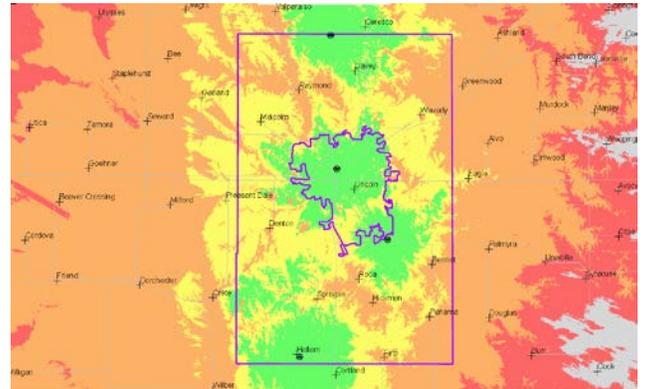


Figure 12: VHF Paging 75.7% County

The current area of coverage for north and south combined voice for portable talk-out outdoors at a level of -89dBm is 65.6% of the County (Figure 11). Paging at a predicted level of -78dBm (yellow and green) provides coverage to 75.7% of the County, and 8dB in-building coverage (green only) is predicted to be only 31.6% of the County.

System Users

Lincoln Public Safety Users

City of Lincoln public safety users include the following:

- Lancaster County Health Department
- Lancaster County Sheriff
- Lancaster County Youth Services
- Lincoln Airport Authority
- Lincoln Fire-Rescue
- Lincoln Hospitals
- Lincoln Police
- Lincoln - Lancaster County Building & Safety Department
- Lincoln - Lancaster County Emergency Management
- Nebraska State Patrol – Capitol Security
- University of Nebraska – Lincoln Police
- University of Nebraska – Parking

With over 2,000 field radios, public safety users in the City of Lincoln use 84.2% of the airtime of the current system. The service area of these users is generally within the City of Lincoln. Within this area, the current system typically provides adequate outdoor but limited indoor coverage for most public safety users.

Predictions indicate that outdoor on-the-hip portable coverage in the City of Lincoln is 90% of the area within the city limits. Indoor (light in-building) coverage is about 65% of this area. Many buildings surpass this level and bi-directional amplifier (BDA) systems⁷ have been implemented to enhance indoor portable performance.

Lancaster County Sheriff

The Lancaster County Sheriff uses just over 150 EDACS trunked radios and requires radio coverage throughout Lancaster County. Due to the rugged terrain found in several locations outside the City of Lincoln, the current EDACS two-site system does not provide the portable coverage these public safety users need. Several county municipalities are located in lower elevation areas surrounded by ridges that block outgoing and incoming signals.

Users have found workarounds to establish and maintain communication, including use of conventional 800 MHz stations and cellular phones when required. The Sheriff Department has no direct UHF or VHF interoperability. Secure voice communications is important but the digital mode⁸ of the current EDACS system does not function well in rural areas.

It is estimated from coverage predictions that 53% of the County has adequate outdoor on-the-hip portable coverage, with about 25% residential (8 dB) in-building penetration capability. It is suspected that much of this coverage occurs within the City of Lincoln. A vehicular repeater is used in the Sheriff's Command Post to offer locally enhanced coverage in the event that the EDACS system coverage is less than adequate at a location.

Rural Fire

Rural Fire uses several 800 MHz conventional repeater systems for communications in the County. North and south areas of the County each have three 800 MHz repeated channels to provide communications with dispatch and for tactical communications during an event. Rural Fire also employs talk-around if repeater coverage is not sufficient for portable operation. Although not reported as an issue, the use of scan and the appropriate selection of an assigned channel could create confusion among users.

Several adjacent county fire departments provide services within Lancaster County and use the Lancaster County Rural Fire repeater systems on a regular basis. Rural fire departments employ about 500 radio units, mostly consisting of Kenwood mobiles and portables. There was not an inventory of pagers, although it appears that pagers are used to monitor operations of dispatch and alternate dispatch repeater channels in the north and south areas of the county. Field units are maintained by multiple service firms, and Elert & Associates is not aware of any regular maintenance schedule for field units. This is a potential issue, as infrastructure and field units of the system are maintained by multiple radio shops thus not insuring all field units are set up to the same performance criteria. RF service monitors must be calibrated annually, repeaters should

⁷ A list of BDA locations can be found on page 13.

⁸ ProVoice is digital audio, not encryption, using an IMBE vocoder like P25 although not compatible. This gives the Sheriff Department the impression of being secure as compared to analog.

be checked two to four times per year, and all field radios should be checked annually to validate that they meet specifications. To ensure operation, RF test equipment used for field radio maintenance should be checked against a local standard used to perform maintenance on repeaters. This would require that all service shops pay an annual visit to the Lincoln Radio Shop to document any differences in frequency calibration, FM deviation, SINAD, and RF level generation. Any differences that are not corrected will result in poor system performance. This issue is much more readily apparent with narrowband operation of VHF, UHF, and 700 MHz.

As rural fire departments are divided north and south, each area is equipped with three 800 MHz repeater stations at two sites. Both areas have a main dispatch channel using the Military and Jensen Park sites. Alternate dispatch channels are located near the north and south borders along with a TAC channel for each area. All operation on these channels is analog conventional. Dispatch channels are also patched into their respective VHF paging channels.

Coverage predictions indicate that mobile coverage is quite adequate, but portable on-the-hip performance is about 65.6% of the County. Predictions indicate that paging performance outdoors is about 72.6% of the County area at -78dBm. At these coverage levels, there are many locations in the County where voice communications and paging may be difficult. Pager performance can also be directly attributed to the pager itself, as well as its setup, tuning, and thus, its sensitivity.

Despite the coverage issues as indicated by the predictions users do not appear to have coverage problems. If they are unable to access a repeater they fallback to a simplex fire ground channel. This procedure would need to be used even if the current coverage could be enhanced as 100% coverage is not realistically attainable.

Public Service

City of Lincoln public service users include the following:

- Radio Maintenance
- Park and Rec
- Public Works
 - Engineering Services
 - Fleet Services
 - Landfill
 - StarTran
 - Street Maintenance
 - Waste Water
 - Water

Public service users operate over 550 radio units on the EDACS trunking system. The service area of most users is the City of Lincoln. Although these users operate on the current public safety system, they do not have the requirement for a public safety radio unit. They need to communicate just the same, however. Most of the public service users operate only in the city and require mostly outdoor coverage. Coverage that these radio users currently experience in the city is deemed acceptable.

Lincoln Public Schools

Lincoln Public Schools uses several radio systems to provide wireless communications. LPS has over 60 facilities. High schools currently use the EDACS system for communication, while the middle and elementary schools use conventional 800 MHz channels and lower cost radio units. There are also separate radio systems for transportation and facilities maintenance. LPS has an extensive fiber network that provides the data network to interconnect all of their facilities.

Several schools share the school's repeater conventional channel in today's system, and performance can be limited. Radio communication is via portable and mobile field units. The repeaters are located at the Military Road or Jensen Park sites. Ideally, each school facility could use an independent radio system for communications, and in the future LPS would like to be able to communicate directly to LECC dispatch if needed. There is a need for a mobile-based radio system that provides coverage between facilities.

System Improvement Options

General

The City of Lincoln and Lancaster County have several independent radio systems that provide primary and backup communications for some Lincoln – Lancaster County radio users. It is understood that the need for change for all other city-county radio systems is driven by the manufacturer's end of support on the EDACS platform. Although system failure is rare, some user groups have reverted to cell phones for their primary communications, and the ability to successfully use field radio units in times of need may be lacking. Any future system should be designed to meet the coverage and operational needs of the defined user community.

The systems considered for change include the primary EDACS 20-channel two-site simulcast system serving City of Lincoln and Lancaster County Sheriff, the Rural Fire conventional 800 MHz voice systems, and the radio system used for the Lincoln Public Schools. These systems provide radio communication service for nearly all Lincoln - Lancaster County radio users.

A single system has been used by most City of Lincoln radio users. A new digital P25 system is the likely choice for replacement, as it is the de facto public safety platform. Sharing a single system provides the highest level of interoperability, as all users are on the same platform. The transition from an analog to digital system platform will provide some system coverage performance improvement and a large audio quality improvement to system users. As the user community has different communication needs, however, one size may not be the best choice for all users from a technical or fiscal viewpoint.

From an RF point of view, City of Lincoln would be best served by the 800 MHz⁹ band. The short wave lengths of the 800 MHz band allow for better in-building penetration than UHF or

⁹ This also includes the 700 MHz band. Nearly all field radio units today have both bands, as they are adjacent to each other and have similar RF characteristics.

VHF¹⁰. Most public safety portable users need at least residential in-building coverage. Another characteristic of the 800 MHz band is that the signals are not impacted by atmosphere conditions and behave more like light than the lower frequency bands (VHF and UHF). This is why they are most coveted by the cellular industry. If terrain is in a signal path, a shadow is formed that may prevent 800 MHz from working in the shadow area, but lower frequencies can still be used, as they tend to bend slightly. This is also true with clutter—the buildings, trees, and other objects that exist on land.

Sometimes atmosphere reflects lower frequency band signals, with one experience defined generally as “skip” on VHF and lower frequencies, while higher frequencies easily penetrate the atmosphere. This means with all other parameters equal (antenna height, power, etc.), 800 MHz will provide less coverage or less range per site than lower frequency bands like VHF, but lower frequency bands like VHF may exhibit adverse effects that may impact successful communications. Overall, VHF or 800 MHz could be considered for County users. Elert & Associates estimates the number of sites required for 800 MHz portable operation would be at least six, but only two sites would be needed using VHF.

Another huge difference that must be addressed is analog vs. digital and wideband vs. narrowband. The FCC has mandated narrowband operation of nearly all VHF and UHF channels, while 800 MHz remain wideband. The action to require narrowband means every component/device must be installed and tuned precisely to reduce the effects of atmospheric and manmade noise. Even after this is done, it has been found that the losses of narrowband are like reducing the power of the repeater and radios by half. Digital protocol, on the other hand, has increased the performance of radio channels (both low band and 800 MHz) to more than make up for the performance losses of narrowband. There are multiple protocols of digital, though only P25 has been generally accepted for public safety. No one currently makes a digital voice pager, however.

Predictions indicate that additional coverage is required for Rural Fire 800 voice and VHF paging systems to attain 95% of the area. As these systems are analog, a number of sites are required to enhance overall system coverage. When repeater operation is questionable, Rural Fire uses direct unit-to-unit communications. As there is no infrastructure, the ability for Fire Dispatch to monitor is not consistent and is completely driven by the location of an event and whether repeated communications is available. A vehicular repeater system could improve local communications and provide a mechanism for Fire Dispatch to remain connected.

A county system at 800 MHz would require several more sites. It is estimated that an additional six sites would be necessary to provide coverage to reach portable on-the-hip performance of about 95% of the County with P25. For analog operation, predictions indicate that the same portable coverage requires about eleven sites. If 800 MHz is used to provide coverage, eight sites would be used for Sheriff and Rural Fire, but the coverage for Rural Fire would fall short of the 95% portable performance desired for public safety.

¹⁰ The actual wave length is the key to successful building penetration. One wave at 851 MHz is almost 14 inches in length. At UHF (455 MHz), one wave is 25 inches, and at VHF (155 MHz), one wave is over 6 feet. The waves of VHF and UHF are easily distorted when entering doors and windows or even reflecting off objects, while those in the 800 MHz band can remain relatively intact.

As the Sheriff Department is normally assigned to the same talk groups as Lincoln Police, two P25 conventional channels should be able to carry their necessary traffic. Rural Fire would add another two channels. Interoperable communications between the Sheriff P25 conventional and Lincoln Police talk groups would be done at the system level. Sheriff units would scan for active talk groups when on the P25 conventional channels in the County. Talk groups would be assigned one of the two available channels. When entering the coverage of the City's P25 trunking system, the Sheriff radios would affiliate and operate on trunked mode.

At 800 MHz, Rural Fire would continue to operate in analog mode. Operationally, they would use one dispatch and TAC channel in each north and south zone. It is envisioned that each zone would have two simulcast analog channels operating on four sites each. This arrangement will improve current coverage, but will not provide countywide analog portable performance.

An alternative for Sheriff and Rural Fire at 800 MHz would be to use a five-channel 800 MHz simulcast trunking system. This would lower the total number of channels between them from six to five, and would provide P25 simulcast digital voice communications for Sheriff and Rural Fire throughout the County. With P25 trunking, Sheriff operation would be identical to the City. Rural Fire would have talk groups assigned to zones as they do today. Voice audio could also be retransmitted on the paging channel through a gateway. Rural Fire would be required to use P25 terminal equipment.

Gateways would provide an audio path from one system to another. This would be true for P25 to DMR and DMR to P25. A computer would enable a connection when the assigned talk groups become active. The user needs only to select the talk group assigned for this function.

Operation with P25 that use the same controller would be transparent to the user whether it is 800 MHz to 800 MHz as in the five-channel P25 County Sheriff – Rural Fire example above or the 800 MHz to VHF P25. Active talk groups appear on each of the individual systems as long as there is a unit affiliated with each of the system on the group that is active.

If Lincoln were to interface with SRS, there would need to be an ISSI interface provided. The interface would exchange system information between the Lincoln – Lancaster County P25 system and the SRS system. Each system will react to the activity as it is programmed.

The current EDACS system uses several bi-directional amplifier (BDA) systems to improve performance inside buildings. A list of these locations can be found on page 14. It is expected that structures in the core of the City of Lincoln, including the State Capitol complex, may experience communications issues. Many of these buildings will exhibit losses far above the level appropriate to address with radio infrastructure. A site in the core of the City (as on the roof of the Hall of Justice) may improve coverage within the Capitol complex, but would not assist the City-County facilities that are below the antenna site.

Improving in-building penetration in the City of Lincoln will require additional repeater sites. Radio sites dispersed around the City will increase the overall signal level and allow penetration of more buildings. It is possible that towers or City facilities would be candidates for antenna/repeater sites. Although towers have been chosen for the conceptual design, this does not prevent the City from considering other locations that may be more desirable. Other locations would need to provide the antenna height required for appropriate performance. Water towers, building structures, or City/County property where a tower could be built could be considered.

The State of Nebraska and several other states have built statewide systems using VHF. The choice of VHF is primarily due to the increased coverage and reduction of the number of sites required to build out the network statewide. Most statewide systems are designed for mobile coverage and quite often offer access to counties (or cities) for local communications. In order for a county to successfully provide portable coverage, additional sites will be required. In addition, the channel capacity would need to be addressed to ensure that the system is able to provide adequate service when it is needed. Lancaster County could consider this as a possible option to provide countywide P25 communications, but would need to address its channel capacity needs.

The Nebraska statewide system is named SRS. SRS is a VHF P25 Phase 1 system that is designed with four to five VHF channel pairs per site¹¹. Although there may be sites still to build out to complete the design, there have been reports of issues with communications. E&A understands that these issues stem from the limited capacity of the system sites, as almost all sites are equipped with four VHF repeater channels. This results in only three simultaneous voice channels available per site. If more than three talk groups were active during an event, there are no other channels to use for communications.

Lincoln - Lancaster County would need to increase the number of sites and the number of available channels to use VHF across the County. As VHF frequencies are limited, it may be difficult to find frequencies that are compatible with existing SRS channels. Lincoln - Lancaster County would likely need to add at least two pairs to the existing SRS system at the Arbor Road site just to support Lancaster County Sheriff and Rural Fire. Arbor Road would need to be simulcast with Jensen Park to provide portable coverage. Converting to simulcast may require updating existing state-owned equipment at the Arbor Road site.

Backup repeaters that are currently in place for Lincoln Police, Sheriff, Fire, Public Works, etc., should remain in place for backup. Most of these stations are located in places other than the main site locations, providing geographic diversity in case one or both of the main sites is lost or are disabled.

Recommendation

As the City of Lincoln – Lancaster County system already uses 800 MHz, E&A recommends that the City continue using this band but consider increasing the number of sites in the City to improve portable in-building coverage. Predictions for the Military Road and Jensen Park sites estimate portable outdoor coverage at 95.1% and residential (8 dB) indoor coverage at 79.2% citywide. Two additional sites in the City bring indoor residential coverage to 92.7%.

800 MHz could also be employed in the County for improved interoperability, but the current system does not provide the Sheriff Department with adequate outdoor portable coverage across the County. 800 MHz coverage predictions indicate eight simulcast sites¹² could be required to provide 95% outdoor portable coverage with 95% reliability at a level of -92dBm. Using the

¹¹ According to Radio Reference, the SRS system has 52 sites. All sites but the Giltner site are listed to have four frequencies.

¹² Predictions used existing towers and inserted new towers when needed.

TSB-88.1-C link budget formula, -92 dBm is the signal level that would provide consistent on-the-hip portable coverage. Predictions indicate that VHF P25 would provide portable coverage across the County with two sites¹³. Although SRS could be used a separate VHF P25 system for use by Sheriff and Rural Fire would provide enhanced radio communications service and replace all of the current 800 MHz conventional channels in service today. Paging would remain as designed today.

The primary public safety radio communications system should be based on P25, an industry standard protocol for that service. APCO P25 was designed for public safety use and is currently a standard. The protocol for public safety radio communications in the United States is APCO Project 25 (P25). The majority of public safety systems in the United States have adopted the Project 25 (P25) platform. P25 is a digital platform available in trunking and conventional formats.

One option is for public safety users to utilize P25, while public service and possibly other users could consider the use of a different infrastructure platform to reduce the cost of the field terminal units and potentially the infrastructure. Due to licensing for the P25 protocol and the ruggedness of the subscriber equipment for public safety, the costs are much higher than other digital systems. Gateways or console patching could be used to offer interoperability between two protocols.

The LECC and EOC should be equipped with new P25 radio consoles. Fire Station 14 should have an updated console system as well. The update could be P25 consoles equipped with a network connection to operate the infrastructure directly and through control stations. The UNL dispatch could also employ new P25 consoles (recommended), but a network connection would be required. The alternative would be to continue to operate via control stations. It is anticipated that the Airport Authority would continue to operate via control stations.

P25 consoles from the radio infrastructure manufacturers are usually the higher cost option, but other third party vendors demand a higher price as well. Alternatives to radio manufacturers such as AVTEK, C4I, and Zetron consoles using a CSSI interface could be considered, some of which will be lower in price though the CSSI interface would also have to be factored in thus possibly erasing savings.

The LECC and Fire Station 14 would be equipped with control stations. At the LECC, these stations would operate independent of the dispatch consoles. At both locations, a control station combining systems would be used to allow operation of these units.

The number of voice groups drives the need to employ trunking technology to share the existing 19 channels¹⁴ among all users. The number of user voice channels for Lincoln - Lancaster County indicates that a trunking format is justified, although the number of channels required to

¹³ The Arbor Road and Jensen Park sites were used for predictions. If the County uses its own VHF channels they would need to be compatible with SRS to be used at Arbor Road.

¹⁴ The current 20-channel system consists of one control channel and 19 voice channels. A control channel is transmitting 100% of the time to continuously update field terminal units. The remaining channels are assigned as needed for voice calls. A request for service is made on the control channel. Control channel frequencies change from time to time, so one repeater is not on the air continuously.

support the traffic load could be reduced without a reduction in service. Like the current EDACS system, P25 uses a control channel to communicate call traffic management to field units. Most P25 systems manage call traffic through a central controller with a backup controller. Public safety and public service user groups in Lancaster County and City of Lincoln have a sufficient number of user groups to justify the use of trunking.

Loading reports from the EDACS system indicate that the number of channels could be reduced without impacting the quality of service, as it seems to be only lightly loaded. Home football games are thought to be the heaviest use of the radio system. Usage reports from the 2012 football season indicate that the maximum loading on the system is about 16% or about three hours¹⁵ of total traffic during the busiest hour. Based on the number of calls during this period, the average transmission time is 4.3 seconds. Erlang-C¹⁶ calculations indicate that with the 19 channels available today and a 4.3-second transmit time, 99% of the callers wait .5 seconds or less, and the system will support over 8,500 calls per hour. The maximum reported calls in the busiest hour was 2,580. Erlang tables indicate that it will take 10 channels to support 25% more calls per hour (3,225) with all other parameters equal. The number of channels utilized by the system infrastructure could be reduced. Furthermore, user groups could use different radio infrastructure to maximize their utility and reduce overall cost. The current channels could be split up to support the different systems.

Improvements can be realized through multiple forms. A transition from analog to digital provides crystal clear audio over the entire coverage area. Once the system coverage ends, there is no audio. This has raised some concern with fire department users, as there are many circumstances where the coverage limit is unknown, such as entering a building into a basement where loss increases rapidly. Most manufacturers have incorporated visual and audible warnings that will alert a user when this condition exists.

There is a concern that Rural Fire does not have the funding required to purchase new VHF P25 trunking field equipment. Applications for Assistance to Firefighters Grants were accepted through December 6, 2013 which could assist in the funded if successful. If funding prevents Rural Fire from moving to a P25 platform the Sheriff department alone does not have the quantity of field units to justify a P25 trunking infrastructure. The Sheriff department may be able to employ two VHF P25 conventional channels that could be interfaced via gateway into the City of Lincoln dispatch and tactical voice groups. In this scenario the Sheriff would employ multi-band P25 field radios so they are able to employ any of the County systems if needed for interoperability. In order to provide improvement for Rural Fire additional sites and supporting microwave backhaul would be necessary. Decision will have to be made focused on the actual requirements in a future RFP.

¹⁵ Communication traffic is measured in Erlangs. Each Erlang represents one hour of radio, telephone, or circuit time. Three Erlangs represents three hours of continuous traffic in one hour of time.

¹⁶ There are three Erlang models. The Erlang-A model assumes that any call attempts that are blocked are lost, and there is no retry. The Erlang-B model assumes that blocked call attempts will retry in a short time. Erlang-C is used when users are queued if no radio channels are available when a request for service is made. Erlang-C calculations will take into account a minimum percentage of users that are successful upon a wait of no more than a fixed time.

Alternative Recommendation for Non-Public Safety

The cost of P25 is higher than many other communications platforms. This is primarily due to the specifications required to provide a public safety grade system and hardened field terminals. Police, Sheriff, Fire, EMS, and other public safety users require such a system. Other users who currently use the EDACS system today may not require the hardened field units, but still use the same system to maintain interoperability. This comes with a cost that may be difficult to justify when moving to P25. As such, compromises can be made to gain an affordable system technology.

A number of public service entities may consider using an alternative digital protocol to P25 to reduce cost. If so, direct interoperability is lost, but there are alternative operating modes that could be implemented when interoperability is needed. Interoperability must be maintained if alternate technologies are employed. At a minimum, this could be accomplished through gateways that are activated by talk group selection. Public service users will certainly be able to communicate on a P25 system, but the cost of the field units as compared to other radio system technologies is usually much higher.

Fire Paging Recommendation

Fire paging is currently provided via two-site simulcast for north and south operations on separate channels. Initially, using one channel simulcast across the County was considered to simplify operations, but it was determined that this would create an issue with the north-south procedures in place today. Users monitor traffic over their paging units. Using one channel for paging would force changes to be made in the procedures for north and south, as all dispatch traffic would need to be simulcast as well to allow monitoring on a single paging channel. It is assumed that no changes in procedures are being considered within Rural Fire protocol, and it is preferred that procedures not change due to radio system limitations. Paging should be left as two channels simulcast north and south.

Predictions indicate that the Fire Paging system as a whole covers 76% of the county area. Additional sites would be required to improve the coverage of the current system. As there were no real complaints concerning paging performance, no changes appear to be necessary.

System Infrastructure Summary Recommendation

The following sections outline the potential infrastructure options that may be considered for Lincoln - Lancaster County radio system users.

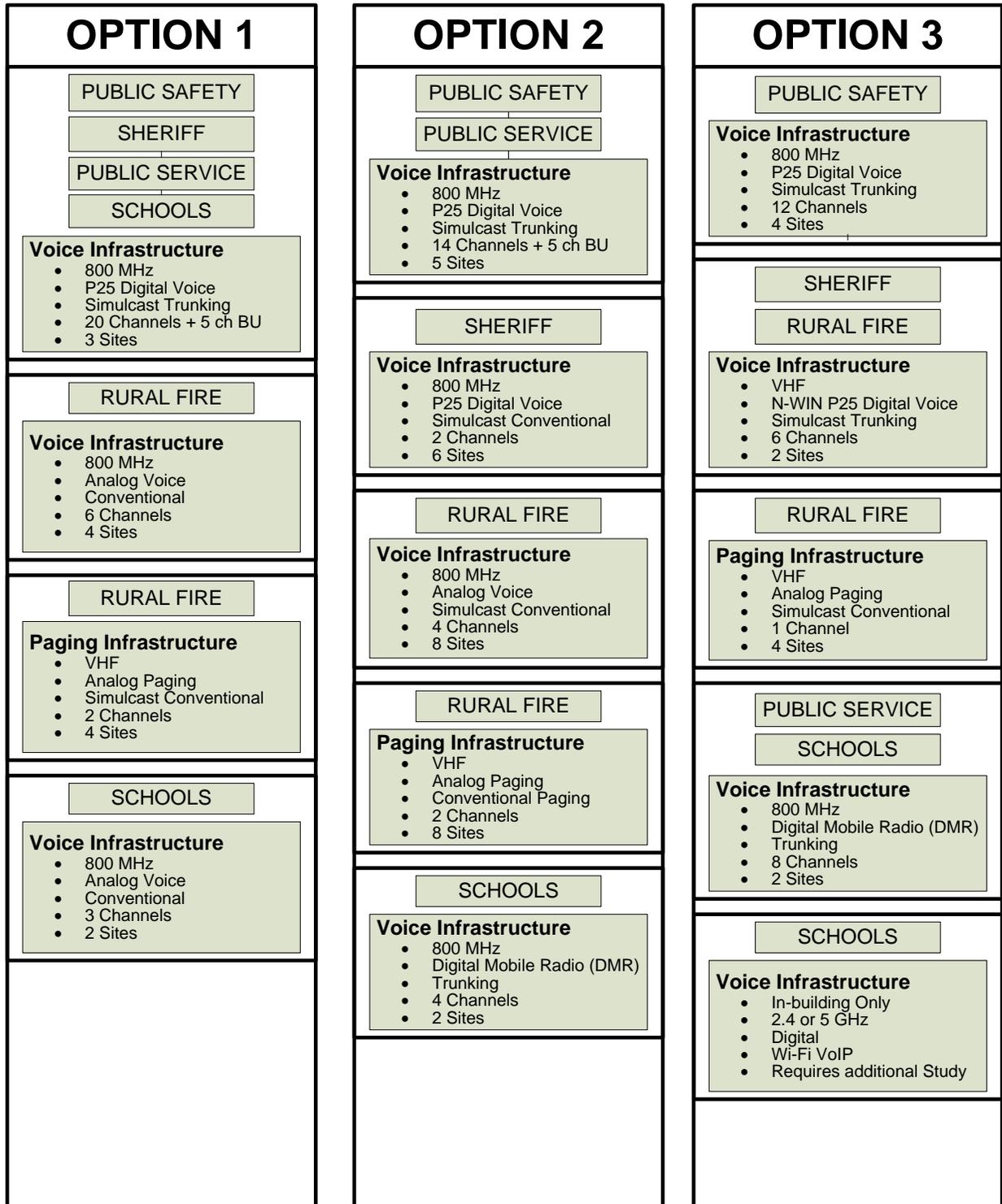
After careful review of the information collected and considering the input from the user community, Elert & Associates envisions the need for up to five infrastructure platforms to support the user group radio communications needs for the City of Lincoln and Lancaster County. The choices to be made are interdependent on each other. Some selections limit the choices of others.

The needs of the following users groups drove the infrastructure options.

- City Public Safety (Law, Fire, EMS, Youth Services, Heath, Hospitals, EMS, Airport)
- County Sheriff
- Rural Fire
- Public Service (Public Works, Park and Rec., Radio Shop)
- Lincoln Public Schools¹⁷

¹⁷ There are too many variables to adequately address any changes to an LPS radio communications system. Although E&A has provided potential options for LPS to consider, additional study will be required before a complete assessment can be done and suitable recommendation formulated. E&A would be happy to provide a proposal for these services.

City of Lincoln – Lancaster County Infrastructure Options



The following are descriptions of the various infrastructure options to meet the communications needs of Lincoln - Lancaster County. Each will have some choices or options to make prior to moving forward. More than one option may be used to meet the radio communications needs of the user community. Different options also may include a different set of sites. E&A suggests that these options be reviewed with a core group of representatives of Lincoln - Lancaster County to determine the choices for which to move forward in the final report.

The 20 channels in use today would be split up depending on how to move forward with the infrastructure. There are at least four other 800 MHz conventional repeater pairs used as backup today that could be added to the list. The quantity of channels listed above can be adjusted as necessary to support the anticipated traffic. Voice traffic on the current 20-channel system reached a maximum of 16% loading on September 1, 2012, with 2,580 calls in that hour. Even if traffic were 25% higher during some other event, this still reflects light load on the system.

Erlang-C calculations¹⁸ for 4.25-second service time, 0.5-second average wait time, nine trunks, and a service level of 99% with no waiting resulted in 2,931 calls per hour. It appears that all current users could get by with 10 channels, but during a major public safety event, the demand for channels will increase. With 12 trunks, calls per hour could rise to 4,542 or 72% more than the highest reported call level. If other user groups chose to move onto a lower cost platform, this would further reduce the normal demand for service on the public safety system and potentially offer even more capacity for public safety.

Option for Public Services

An option for non-public safety users is Digital Mobile Radio (DMR). DMR systems place two digital channels on every RF channel using Time Division Multiple Access (TDMA). Two RF channels provide one control channel and three voice channels or, in the right configuration, four voice channels. One additional channel would provide five or six total voice channels. The DMR system for public service would use two sites and operate in a multi-site mode. In multi-site mode, the sites would not operate in simulcast (although some DMR solutions are capable), but would use different RF channels in each. If users on a common group were located at each site, a call would use both sites. The user does not need to be concerned about site selection when using the DMR solution, as they would not with P25 solution either.

The field units of a DMR system are significantly lower in cost than P25, but have the same basic feature set that users would want, as well as several other features that come standard, as the units are digital including GPS locations. DMR has not been deemed acceptable for public safety due to its lack of national interoperability and no standards-based simulcast capability.

For public service, a DMR system would be programmed to operate like the current radio system is today. DMR for LPS may be done quite differently, but may depend on the manufacturer. In LPS, each school would use one RF channel per facility. Each RF channel supports two voice channels. One manufacturer can set up the system to use one of these channels locally in the

¹⁸ Elert & Associates used an Erlang-C online calculator at <http://www.math.vu.nl/~koole/ccmath/ErlangC/index.php> to determine this value.

facility, while the other channel can be a common channel for a group or all facilities that are interconnected via the LPS fiber network.

Another alternative to explore for LPS is the use of the existing Wi-Fi systems that are in place at LPS facilities. There may be voice systems in the near future that could utilize the wireless access points that currently exist in the facilities. There is no way to know at this point if the current configuration can support such a system. Further investigation would be required.

Coverage Predictions

Portable Environment	Out of Range	Hill Top	Outdoor	Light In-Building
Mobile Environment	Hill Top	Outdoor		

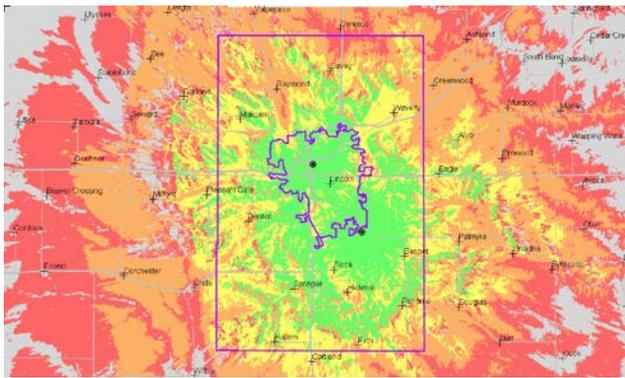


Figure 13: 800 P25 Two-Site PTOO 72.3% County

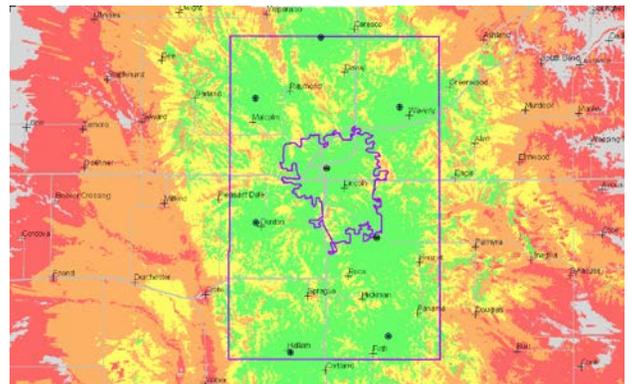


Figure 14: 800 P25 Eight-Site PTOO 94.0% County

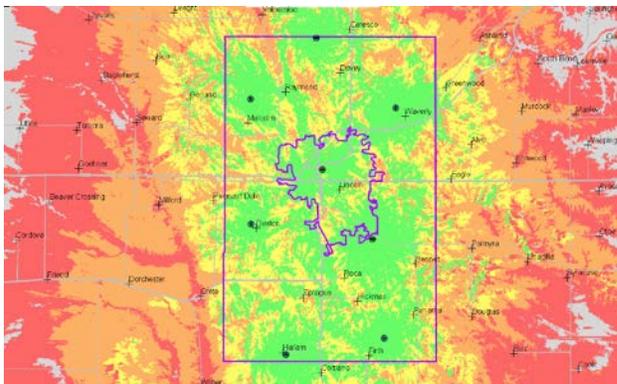


Figure 15: 800 MHz Eight-Site Analog PTOO 87.1% County

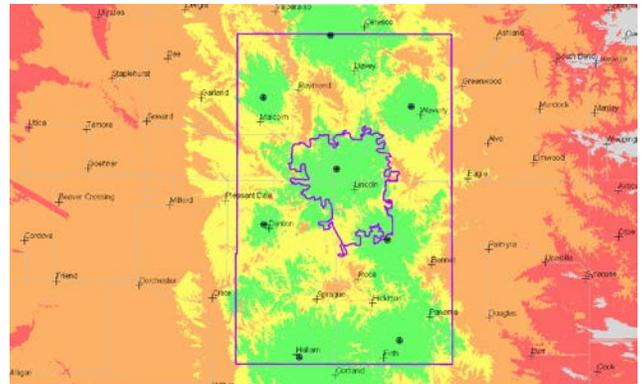


Figure 16: VHF Analog Four-Site Paging 88.4% County

Portable Environment	Out of Range	Hill Top	Outdoor	Light In-Building
Mobile Environment	Hill Top	Outdoor		

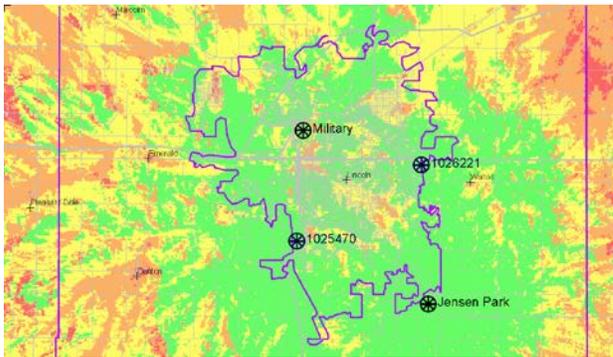


Figure 17: 800 Digital Four-Site PTOI 94.6% City

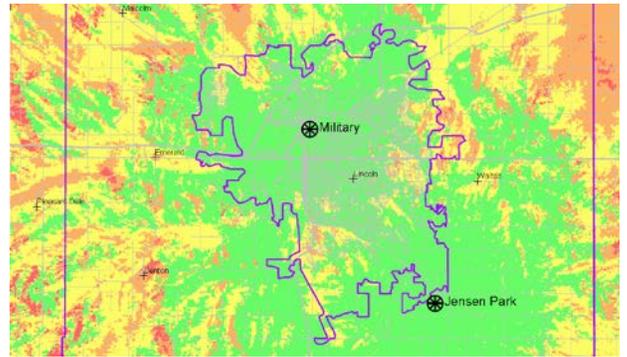


Figure 18: 800 DMR Two-Site PTOO 96.0% City

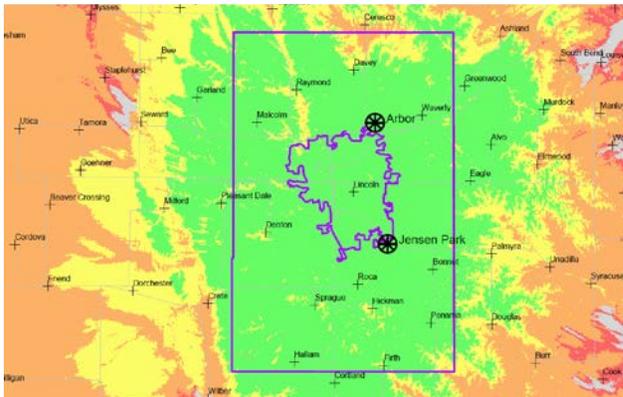


Figure 19: VHF P25 Two-Site PTOO 99.2% County

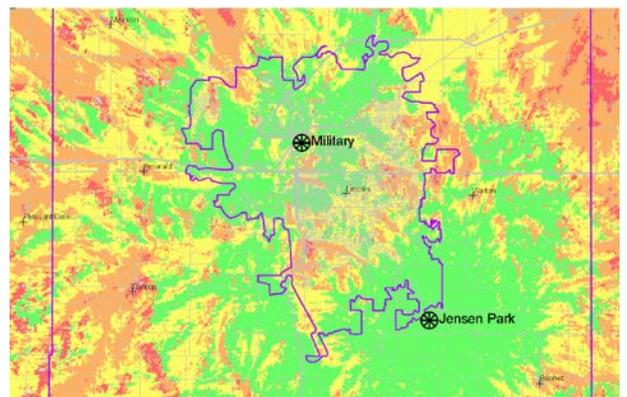
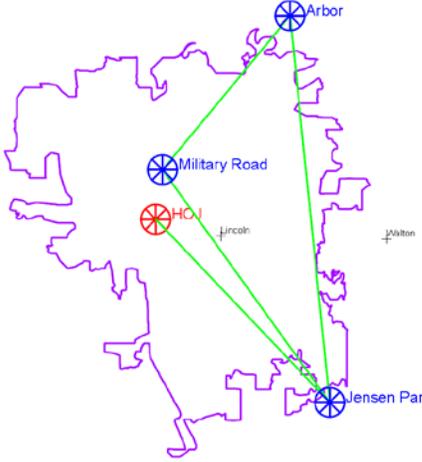
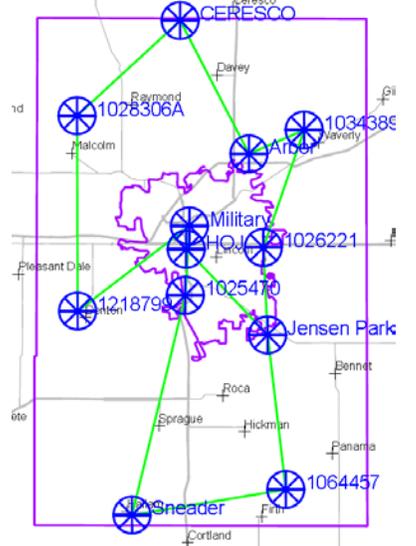
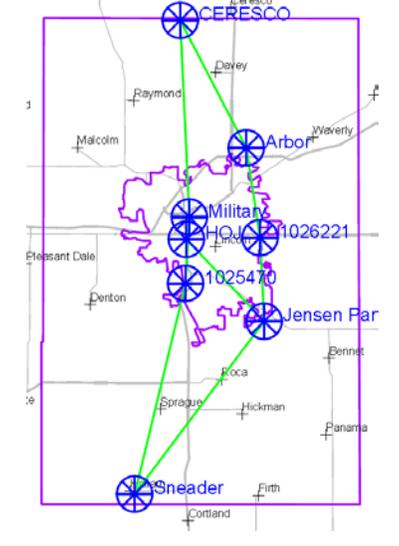


Figure 20: 800 MHz P25 Two-Site PTOI 85.4% City

Microwave

Option 1 Topology	Option 2 Topology	Option 3 Topology
 <p>Option 1 microwave is identical to the existing microwave network. There are other links in this network that are not shown.</p>	 <p>Option 2 uses a ring topology that links all but the Hall of Justice on an 11-site continuous ring around the County using 6 GHz and 10 GHz microwave.</p>	 <p>Option 3 uses fewer sites due to the use of VHF for coverage of the County thus fewer microwave links.</p>

RFP Design Considerations

In a new system design, the level of coverage desired will be specified and the vendor will be required to meet these minimum coverage requirements through testing. For public safety, the common practice for the level of coverage is 95% of the area 95% of the time for a portable radio outdoors on the hip without a speaker microphone antenna. This requires that the system be able to provide a level of signal that would be received with a portable antenna worn on the hip. The system also must be able to receive a transmission from the portable while the unit is on the hip, but this is more difficult to measure, so one must ensure that the design is balanced for talk out vs. talk back. Unbalanced talk out or talk back may create confusion at fringe coverage locations.

Factors such as noise, interference, fading, antenna, body loss, building loss, and reliability must be considered when estimating coverage performance. When performance must be demonstrated, some of these factors must be included to ensure that measurements reflect actual performance. Performance testing involves drive tests where a vehicle with an outside antenna is used to measure signal level and BER performance. If the specification is for portable on-the-hip coverage, what factors need to be employed to compensate?

All cities have hardened structures that have even higher building penetration levels. The design will call for a specified building penetration level, but there are few automated ways to test these areas. Quite often, a subjective test is performed, where a team or teams representing all parties visit a list of buildings to determine the level of indoor performance. The number of buildings must be large enough to draw a conclusion on the validity of the testing. This test also documents the operation for all intended users of the system. Some buildings that fail will exceed the building penetration loss level in the design specification. After testing, any buildings that exceed the minimum penetration loss level but require coverage can be equipped at additional cost with a well-designed bi-directional amplifier (BDA) and distributed antenna system (DAS) to provide adequate in-building coverage.

Some users are unlikely candidates to move to digital trunking due to the use of over-the-air signaling systems. The vocoder used in P25 analyzes voice against a predefined set of voice codes that is used to reproduce the audio on the receiving unit. Most signaling systems use pure tones, which digital radio may not be able to reproduce properly. The street department snow plows may use DTMF signaling for associated applications over their radios. Although an alternative signaling scheme may be available, digital systems do not support DTMF signaling. Any application of this nature needs to be identified so the appropriate solutions can be chosen.

P25 system updates and upgrades will be available from manufacturers periodically. Lincoln Radio Shop personnel would need to complete an extensive technical training program from the vendor and would need to attend periodic updates to ensure technical competency on the system. Lincoln - Lancaster County would need to determine if the updates would be done by the manufacturer or by the Radio Shop. Although Radio Shop expertise may be sufficient, they may require the manufacturer's support for the first few years of operation. The level of this ongoing support from the manufacturer should be determined up front, as there will be a cost.

Users need to be properly trained to interoperate effectively, and appropriate procedures must be developed regardless of the methodology. If multiple technologies are employed, each user group would be trained on their system. Interoperability used for different technologies needs to be determined and made part of the acceptance test procedures. Depending on what technologies are ultimately chosen, there may be a need to work with multiple vendors to ensure operation.

Budgetary Costs for Possible Solutions

Below are budgetary estimates for an outright purchase of the conceptual design presented. All are P25. The number and cost of the field units are identical in each option. Each technical option offers alternatives to provide coverage for public safety radio systems as described above.

Option 1: Two Sites P25 Simulcast (Today’s System – P25)

System Component	Description	Cost
Vendor Infrastructure	Repeaters, satellite receivers, voting, simulcast, antennas, microwave, power, shelter, grounding, towers, civil, dispatch equipment, and alarms	\$6,273,000
Vendor Services	Engineering, installation, testing, commissioning, and training	\$1,726,000
Field Terminal Equipment	Mobiles, portables, and associated accessories	\$13,052,000
Contingency	Equipment, services, and site work	\$883,000
Professional Services	Licensing, consulting, and project management	\$251,000
	Total	\$22,185,000

FIELD EQUIPMENT	3670
HIGH TIER SUBSCRIBER EQUIPMENT	
HIGH TIER MOBILES	
800 P25 Trunked Mobile	418
HIGH TIER PORTABLES	
800 Analog Conventional Portable	90
800 P25 Trunked Portable	1261
HIGH TIER CONTROL STATIONS	
VHF Analog Conventional Control Station	2
800 P25 Trunked Control Station	108
MID TIER SUBSCRIBER EQUIPMENT	
MID TIER MOBILES	
800 P25 Trunked Mobile	391
MID TIER PORTABLES	
800 P25 Trunked Portable	541
MID TIER CONTROL STATIONS	
800 P25 Trunked Control Station	35
LOW TIER SUBSCRIBER EQUIPMENT	
LOW TIER MOBILES	
800 Analog Mobile	428
LOW TIER PORTABLES	
800 Analog Portable	378
LOW TIER CONTROL STATIONS	
800 Analog Control Station	18

Option 1 is a virtual forklift replacement of the current EDACS trunking system with a 20-channel P25 system with five-channel backup at Arbor Road. This option replaces only the EDACS radio system infrastructure, microwave, antennas, and transmission lines. This also includes one new shelter for Military Road and ten P25 dispatch consoles at the LECC.

All other infrastructure supporting Rural Fire and conventional 800 MHz and VHF paging remains in place. All field radio units are also included for replacement, but non-trunking units used by Rural Fire and Lincoln Public Schools may not be considered end of life and could continue to be used.

AES single key digital encryption and over-the-air-rekeying (OTAR) is added to all public safety field units along with one KVL key loader. Over-the-air-reprogramming (OTAP) is included and priced into all P25 field units. Utilizing OTAR and OTAP makes for not requiring field units to be brought back in for reprogramming as this can be accomplished over the air remotely.

The transition from analog to P25 digital is expected to improve coverage about 11% in the county and 10% to the city. All other systems should expect about the same coverage, as the infrastructure will not change. New system monitoring and control hardware is anticipated to be positioned at Military Road or Jensen Park and LECC.

This option replaces system infrastructure, microwave, antennas, and transmission lines on all P25 system infrastructure with a figure for tower studies and possible strengthening included for contingency. This also includes one new shelter for Military Road and 10 P25 dispatch consoles at the LECC, 1 at the EOC and 1 at Fire Station 14. System monitoring and control hardware is anticipated to be positioned at Jensen Park and LECC.

Below is a listing of the major components used to build the cost estimate for the infrastructure.

P25 TRUNKED OPERATION	
P25 800 Trunked Repeater	5
P25 800 Trunked Repeater	40
P25 Encryption	45
VOTING	
P25 Comparator	20
CONTROLLERS	
Simulcast Controller	20
Trunking Controller	1
ANTENNA SYSTEM	
TX/RX Combining System	45
Antenna System	6
Tower Top Amplifier	3
LDF-5 7/8" Transmission Line	1666
LDF-7 1 5/8" Transmission Line	1184
LINKING & MICROWAVE	
Mid Range 6 GHz Link/mux /network	4

POWER	
1500W Dual Conversion UPS / DC Plant System	5
SHELTER & GROUNDING	
12' X 30' Shelter	1
TOWERS	
Tower Strengthening (Height of Structures)	1137
Alarm System	
Alarms	4
DISPATCH CONSOLES	
P25 Console	12
Console Furniture base on 4 postion Console config	10
OTHER	
Net Clock System	1
Audio Logging System	1
MPLS Core Router	1
MPLS Site Router	3
OTAP	1
OTAR	1

Option 2: 800 MHz P25 / 800 MHz Analog/DMR

System Component	Description	Cost
Vendor Infrastructure	Repeaters, satellite receivers, voting, simulcast, antennas, microwave, power, shelter, grounding, towers, civil, dispatch equipment, and alarms	\$11,795,000
Vendor Services	Engineering, installation, testing, commissioning, and training	\$3,244,000

Field Terminal Equipment	Mobiles, portables, and associated accessories	\$12,897,000
Contingency	Equipment, services, and site work	\$1,838,000
Professional Services	Licensing, consulting, and project management	\$472,000
	Total	\$30,246,000

FIELD EQUIPMENT	3681
HIGH TIER SUBSCRIBER EQUIPMENT	
HIGH TIER MOBILES	
800 P25 Trunked Mobile	418
HIGH TIER PORTABLES	
800 Analog Conventional Portable	90
800 P25 Trunked Portable	1261
HIGH TIER CONTROL STATIONS	
VHF Analog Conventional Control Station	2
800 P25 Trunked Control Station	137
MID TIER SUBSCRIBER EQUIPMENT	
MID TIER MOBILES	
800 P25 Trunked Mobile	391
MID TIER PORTABLES	
800 P25 Trunked Portable	404
MID TIER CONTROL STATIONS	
800 P25 Trunked Control Station	35
LOW TIER SUBSCRIBER EQUIPMENT	
LOW TIER MOBILES	
800 DMR Mobile	225
800 Analog Mobile	203
LOW TIER PORTABLES	
800 DMR Portable	275
800 Analog Portable	240
LOW TIER CONTROL STATIONS	
800 Analog Control Station	18

Option 2 shifts the Sheriff Department to their own two-channel 800 MHz P25 simulcast conventional system when operating outside city coverage. Six sites are positioned around the county to fill in the weakest areas. All but one site uses existing towers. The Verizon site south of the Branched Oak State Recreation Area needs additional tower height to be effective.

The sites used to provide Sheriff coverage will also expand the Rural Fire voice and paging systems to these sites, enhancing performance while maintaining identical modes of operation. Although improved, the Rural Fire analog systems will fall short of the 95% coverage of the county that public safety generally attempts to achieve. The cost to get to 95% coverage at a 95% reliability would be quite high.

Public safety and public service will be serviced by the City of Lincoln P25 800 MHz simulcast system. It will use 14 channels and be expanded to four sites to improve residential in-building performance. Two additional sites will encompass the city and increase the density of signal within the City.

Lincoln Public Schools are replaced by a four-channel 800 MHz Digital Mobile Radio (DMR) infrastructure providing a common digital platform for communications.

This option replaces system infrastructure, microwave, antennas, and transmission lines on all system infrastructure with a figure for tower studies and possible strengthening included for contingency. This option also includes one new shelter for Military Road and four other location. There are 10 P25 dispatch consoles at the LECC, 3 at UNL, 1 at the EOC and 6 at Fire Station 14. System monitoring and control hardware is anticipated to be positioned at Military Road, Jensen Park, and LECC.

Below is a listing of the major components uses to build the cost estimate for the infrastructure.

ANALOG - DIGITAL CONVENTIONAL	
Analog VHF Paging Repeater North	4
Analog VHF Paging Repeater South	4
Analog 800 Conventional Repeater North	8
DMR TRUNKED	
Analog 800 Conventional Repeater South	8
DMR 800 Trunked Repeater	4
P25 CONVENTIONAL OPERATION	
P25 800 Conventional Repeater	12
P25 TRUNKED OPERATION	
P25 800 Trunked Repeater BU Arbor RD	5
P25 800 Trunked Repeater Primary	56
P25 Encryption	61
VOTING	
Analog Voting Equipment	6
P25 Comparator	16
CONTROLLERS	
DMR Controller	1
Simulcast Controller	22
Trunking Controller	1
ANTENNA SYSTEM	
TX/RX Combining System	85
800 MHz Antenna System	22
Tower Top Amplifier	11
VHF Antenna System	6
LDF-5 7/8" Transmission Line	5714
LDF-7 1 5/8" Transmission Line	3467
LINKING & MICROWAVE	
6/10 GHz Link/mux /network	9
Mid Range 6 GHz Link/mux /network	3

POWER	
1500W Dual Conversion UPS / DC Plant System	13
15 kW Generator w/1X Belly Tank & Transfer Switch	7
SHELTER & GROUNDING	
Grounding System	7
Site Improvements	4
12' X 30' Shelter	1
12' X 16' Shelter	4
TOWERS	
Self Supporting (enter height in feet) per foot	300
Tower Strengthening (Height of Structures)	3016
CIVIL ENGINEERING	
Site Improvements (access road, etc.)	7
Alarm System	
Alarms	12
DISPATCH CONSOLES	
P25 Console	20
Console Furniture base on 4 postion Console config	10
OTHER	
Net Clock System	1
Audio Logging System	1
MPLS Core Router	1
MPLS Site Router	11
OTAP	1
OTAR	1

Option 3: 800 MHz P25 / VHF P25 / DMR

System Component	Description	Cost
Vendor Infrastructure	Repeaters, satellite receivers, voting, simulcast, antennas, microwave, power, shelter, grounding, towers, civil, dispatch equipment, and alarms	\$9,355,000
Vendor Services	Engineering, installation, testing, commissioning, and training	\$2,573,000
Field Terminal Equipment	Mobiles, portables, and associated accessories	\$11,128,000

Contingency	Equipment, services, and site work	\$1,374,000
Professional Services	Licensing, consulting, and project management	\$375,000
	Total	\$24,805,000

FIELD EQUIPMENT		3690
HIGH TIER SUBSCRIBER EQUIPMENT		
Multi-Band Multi-Mode Mobile		400
HIGH TIER PORTABLES		
Multi-Band Multi-Mode Portable		1257
800 Analog Conventional Portable		90
800 P25 Trunked Portable		4
HIGH TIER CONTROL STATIONS		
VHF P25 Trunked Control Station		26
800 P25 Trunked Control Station		122
MID TIER SUBSCRIBER EQUIPMENT		
MID TIER MOBILES		
VHF P25 Trunked Mobile		203
MID TIER PORTABLES		
VHF P25 Trunked Portable		240
MID TIER CONTROL STATIONS		
VHF P25 Trunked Control Station		18
LOW TIER SUBSCRIBER EQUIPMENT		
LOW TIER MOBILES		
800 DMR Mobile		616
LOW TIER PORTABLES		
800 DMR Portable		679
LOW TIER CONTROL STATIONS		
800 DMR Control Station		35

Option 3 shifts public service to an enhanced Digital Mobile Radio (DMR) system that is shared by LPS users. The DMR system is trunked and allows members of the same group on both sites to communicate seamlessly. The proposed system would have four trunked channels with all channels available for voice communications. The capabilities of different vendor products may offer other possible operating scenarios.

Public safety will be the primary users of the 12-channel, 4 site 800 MHz P25 simulcast system.

Sheriff and Rural Fire will use a six-channel VHF P25 simulcast trunking system that will utilize the State’s SRS channel set along with two VHF channels¹⁹ using two sites.

Public safety and Sheriff will utilize multi-band mobile and portable radios so that they are directly compatible with both P25 networks for backup purposes.

Rural Fire units are proposed to be VHF only. Backup communications would run over the north and south paging system channels.

This option replaces system infrastructure, microwave, antennas, and transmission lines on all system infrastructure with a figure for tower studies and possible strengthening included for contingency. This option also includes one new shelter for Military Road and two other locations. There are 10 P25 dispatch consoles at the LECC, 3 at UNL, 1 at the EOC and 6 at Fire Station 14. System monitoring and control hardware is anticipated to be positioned at Military Road, Jensen Park, and LECC.

Below is a listing of the major components uses to build the cost estimate for the infrastructure.

ANALOG - DIGITAL CONVENTIONAL	
Analog VHF Paging Repeater North	2
Analog VHF Paging Repeater South	2
DMR TRUNKED	
DMR 800 Trunked Repeater	8
P25 TRUNKED OPERATION	
P25 VHF Trunked Repeater County	12
P25 800 Trunked Repeater Lincoln	48
P25 Encryption	60
VOTING	
Analog Voting Equipment	2
P25 Comparator	18
CONTROLLERS	
DMR Trunking Controller	1
Simulcast Controller	20
Trunking Controller	1
ANTENNA SYSTEM	
800 MHz TX/RX Combining System	56
VHF TX/RX Combining System	14
800 MHz Antenna System	4
Tower Top Amplifier	2
VHF Antenna System	4
LDF-5 7/8' Transmission Line	3781
LDF-7 1 5/8" Transmission Line	1443
LINKING & MICROWAVE	
6/10 GHz Link/mux /network	5
Mid Range 6 GHz Link/mux /network	3

POWER	
1500W Dual Conversion UPS / DC Plant System	9
15 kW Generator w/1X Belly Tank & Transfer Switch	3
SHELTER & GROUNDING	
Grounding System	3
Site Improvements	2
12' X 30' Shelter	1
12' X 16' Shelter	2
TOWERS	
Tower Strengthening (Height of Structures)	2147
CIVIL ENGINEERING	
Site Improvements (access road, etc.)	3
Alarm System	
Alarms	7
DISPATCH CONSOLES	
P25 Console	20
Console Furniture base on 4 position Console config	10
OTHER	
Net Clock System	1
Audio Logging System	1
MPLS Core Router	1
MPLS Site Router	4
OTAP	1
OTAR	1

Recommendation

In E&A’s opinion, enhancements are needed in the public safety infrastructure for both the City of Lincoln and Lancaster County. Residential in-building level of coverage should be attained. For the City

¹⁹ It may be difficult to find two compatible channel pairs to use with the existing SRS channels at the Arbor Road site but without additional channel capacity Lancaster County users may find the system overloaded with local State traffic which would further complicate current system issues.

of Lincoln, two appropriately positioned sites would be added to the current sites. Sheriff operation beyond the City boundaries does not require several channels unless Rural Fire would be added. A digital VHF platform will provide service with a fraction of the sites required for similar 800 MHz performance. Joining the SRS system would require additional frequencies, but with narrowbanding behind us, additional pairs to increase the capacity should be attainable in the timeframe of the transition.

- All public safety users should operate on a P25 platform.
- Rural Fire should also transition to VHF P25, as this will provide the best perform in the rural areas of Lancaster County.
- Public service would be well served with an independent digital mobile radio system. Any interoperability requirements are easily attained via gateways.
- Lincoln Public Schools have both indoor and outdoor communications requirements. The DMR platform will serve LPS outdoor users well. Even though LPS indoor users may see a performance improvement with a DMR system as proposed, there may be other solutions to consider that will require additional study. E&A recommends that LPS take an additional step to explore other solutions for their indoor communications requirements that may be able to leverage their current Wi-Fi and/or fiber networks.

Elert & Associates recommends that the City of Lincoln - Lancaster County consider Option 3. This is not the only combination that could be implemented if there are other considerations. A new system could be implemented at any time and units taken off the current system over a period of time so cutover to new systems does not happen in a short time period. Also, if the reduction to 12 channels appears to be too much, current system channels could be taken off the air temporarily as a test of the actual number of channels required to provide adequate service. If the reduction in our recommendation needs to be raised, there are other 800 MHz pairs used for backup that could be tapped to attain the 800 MHz channels used for the DMR system for use by public service and LPS.

Once the City of Lincoln – Lancaster County have determined the course of action, each of the infrastructures that need to be pursued would be best handled by separate purchases, as some vendors will not handle all products. This, of course, is dependent upon the actions taken.

Transition Planning

The plan of action must continue to be driven by the organizations supporting it, while focusing on the improvement of identified problems. Facilitating this change and managing the project of transitioning to a new technology will ultimately be a win–win solution and will overcome the identified barriers. The transformation will not only involve equipment and systems, but is expected to address cultural, managerial, and financial impediments that, unless addressed by the stakeholders, have the potential of killing the project.

The steps necessary to effect a successful transition include the following:

- Create a quality assurance program with focus on problem resolution.
- Evaluate the current technology, systems, and weak points.
- Evaluate the alternatives related to operations and coverage.
- Assess each jurisdiction’s business rules and related operations.
- Facilitate meetings and groups to find common ground for the design.
- Understand and assist in the development of system expectations.
- Coordinate the implementation of the new communication system.
- Create/design all necessary project management materials, tools, and documentation to affect a positive outcome.
- Prepare required reports to jurisdictional policy/decision makers.

Training

With the implications of new and enhanced technology to meet the demands of today’s public safety, first responder, and EMS personnel, the need for training in the use of the new capabilities has never been greater. With the advent of these new technologies, it is actually possible for the first time to enable users to program the radio technology just the way they want. Increasingly, this integration of voice and data is having a positive impact on productivity. This very positive change can happen only if users are trained on how to make use of the new technology and to gain access to its features.

The training plan must be a part of any transition plan, as not having officers and other staff properly trained in the use will certainly doom the project or at least not allow the gains of expected productivity to be realized.

Appendix 1 – User Terminal Inventory

Department	Qty	500M Scan Control Station	500M Scan Mobile	Jaguar 700P Scan Portable	Jaguar 700P System Portable	LPE-200 Scan Portable	LPE-200 System Portable	LPE-50 Select Portable	M5300 Scan Mobile	M7100 Scan Control Station	M7100 Scan Mobile	M7300 System Control Station	M7300 Scan Control Station	M7300 Scan Mobile	Maestro Console	MDX Scan Control Station	MRK II Scan Portable	MRK II System Portable	Orion Scan Control Station	Orion Scan Mobile	Orion System Mobile	P5150 Scan Portable	P5500 Scan Portable	P5550 Scan Conventional Portable	P5550 Scan EDACS Portable	P7130 Select Portable	P7150 Scan Portable	P7170 System Portable	P7250 Scan Portable	P7270 System Portable	P7350 Scan Portable	P7370 System Portable	TK-480 Portable	TK-980 Mobile					
911	41								18	1					11												11												
911 Backup	22									1						15												6											
Adult Detention Facility	128							8																90	30														
Air National Guard	15		3	5																							2					5							
Animal Control	12									1																	11												
Blood Bank	1																										1												
BNSF	3																										3												
Building and Safety - Fire Inspectors	9																											9											
Engineering Services	13								1	7												1				2	2												
FBI	3																									3													
Fleet Services	4								1	3																													
Lancaster County Emergency Management	85		1	1	13					13		3	1														44	9											
Lancaster County Health Department	39			12					1											2							24												
Lancaster County Sheriff	168		4	2					1	17			1						45							93	1	3					1						
Lancaster County Youth Services Center	26	1		6																						19													
Landfill	42		2		2				2	22									5		2					7													
Lincoln Airport Authority	85			1	7			3	7	10						11										46													
Lincoln Fire & Rescue	240		2	21					16	66																123	12												
Lincoln Hospital: Bryan/LGH East	4								1																	3													
Lincoln Hospital: Bryan/LGH West	4								1																	3													
Lincoln Hospital: St. Elizabeths Hospital	6								3																	3													
Lincoln Police Department	735	10	9	18	1	58				33						31	1	1	152			2			418	1													
Lincoln Public Schools	500																					93			44										138	225			
Madonna	1																									1													
Midwest Medical	4																					4																	
Nebraska Department of Roads	2								1	1																													
Nebraska Game and Parks	8																										8												
Nebraska Heart Hospital	1																									1													
Nebraska State Fire Marshal	5																					5																	
Nebraska State Health & Human Services	15				6					3																6													
Nebraska State Patrol	48				28				1	3																16													
Nebraska State Patrol - Capital Security	21	1							1													19																	
Parks - Operations	27		1							14													4																
Parks - Recreation	19		3							10																													
Radio Maintenance	282		8	2	4	1	1		17	19						3	11		4			28			29	88	54		7		6								
Rural Fire	465									17			1			2											2									240	203		
StarCare	6									2																													
StarTran	93								2	84																													
Street Maintenance	144		87		3				3	33	2					1						10				5													
Traffic Engineering	19		3							11																3													
University of Nebraska Parking	30	1	4						1	6												16						2											
University of Nebraska Police	105			11	18				4	1							3	3	3	8						45	9												
Waste Water	80			26	3				1	19												24	3			3	1												
Water - Ashland	28				4				1	13												1				9													
Water - Lincoln	57		4						2	36			1									5				8	1												
Grand Total	3645	13	131	105	1	146	1	1	11	90	444	2	3	4	11	15	48	15	4	211	8	214	3	90	30	29	1061	122	3	11	5	7	378	428					

Appendix 2 – FCC Trunked System Licensing

REFERENCE COPY

This is not an official FCC license. It is a record of public information contained in the FCC's licensing database on the date that this reference copy was generated. In cases where FCC rules require the presentation, posting, or display of an FCC license, this document may not be used in place of an official FCC license.



**Federal Communications Commission
Public Safety and Homeland Security Bureau**

RADIO STATION AUTHORIZATION

LICENSEE: LINCOLN, CITY OF

ATTN: CITY OF LINCOLN RADIO SHOP
LINCOLN, CITY OF
901 WEST BOND ST. SUITE 110
LINCOLN, NE 68521

Call Sign WNDX299	File Number 0005479377
Radio Service YE - PubSfty/S pecEmer/PubSftyNtlPlan,806-817/851 -862MHz,Trunked	
Regulatory Status PMRS	
Frequency Coordination Number	

FCC Registration Number (FRN): 0002358307

Grant Date 02-03-2004	Effective Date 11-07-2012	Expiration Date 04-19-2014	Print Date 11-07-2012
---------------------------------	-------------------------------------	--------------------------------------	---------------------------------

STATION TECHNICAL SPECIFICATIONS

Fixed Location Address or Mobile Area of Operation

- Loc 1 Address:** 1901 N 14th
City: LINCOLN County: LANCASTER State: NE
Lat (NAD83): 40-49-53.0 N Long (NAD83): 096-42-13.0 W ASR No.: 1213122 Ground Elev: 349.0
- Loc 2 Address:** 9001 YANKEE HILL RD
City: CHENEY County: LANCASTER State: NE
Lat (NAD83): 40-43-12.0 N Long (NAD83): 096-35-52.0 W ASR No.: 1027527 Ground Elev: 434.0
- Loc 3 Area of operation**
Operating within a 32.0 km radius around 40-47-10.0 N, 096-41-16.1 W,
Lincoln, LANCASTER county, NE
- Loc 4 Area of operation**
Land Mobile Control Station meeting the 6.1 Meter Rule: LANCASTER county, NE

Antennas

Loc No.	Ant No.	Frequencies (MHz)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
1	1	000856.21250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000856.46250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

Licensee Name: LINCOLN, CITY OF

Call Sign: WNDX299

File Number: 0005479377

Print Date: 11-07-2012

Antennas

Loc No.	Ant No.	Frequencies (MHz)	Sta. Clk.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Hl./Tp meters	Ant. AAT meters	Construct Deadline Date
1	1	000856.71250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000856.96250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000857.21250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000857.46250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000857.71250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000857.96250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000858.21250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000858.46250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000858.71250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000858.96250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000859.21250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000859.46250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000859.71250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000859.96250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	
1	1	000854.01250000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	03-18-2009
1	1	000854.18750000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	03-18-2009
1	1	000854.58750000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	03-18-2009
1	1	000854.68750000	FB2C	1		14K0F9W	100.000	263.000	104.0	78.0	03-18-2009
2	1	000856.21250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000856.46250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	

Licensee Name: LINCOLN, CITY OF

Call Sign: WNDX299

File Number: 0005479377

Print Date: 11-07-2012

Antennas

Loc No.	Ant No.	Frequencies (MHz)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
2	1	000856.71250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000856.96250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000857.21250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000857.46250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000857.71250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000857.96250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000858.21250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000858.46250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000858.71250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000858.96250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000859.21250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000859.46250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000859.71250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000859.96250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	
2	1	000854.01250000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	03-18-2009
2	1	000854.18750000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	03-18-2009
2	1	000854.58750000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	03-18-2009
2	1	000854.68750000	FB2C	1		14K0F9W	100.000	226.000	150.0	191.0	03-18-2009
3	1	000811.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000811.46250000	MO	1965		14K0F9W	35.000	35.000			

Licensee Name: LINCOLN, CITY OF

Call Sign: WNDX299

File Number: 0005479377

Print Date: 11-07-2012

Antennas

Loc No.	Ant No.	Frequencies (MHz)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
3	1	000811.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000811.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000812.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000812.46250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000812.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000812.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000813.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000813.46250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000813.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000813.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000814.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000814.46250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000814.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000814.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000856.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000856.46250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000856.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000856.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000857.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000857.46250000	MO	1965		14K0F9W	35.000	35.000			

Licensee Name: LINCOLN, CITY OF

Call Sign: WNDX299

File Number: 0005479377

Print Date: 11-07-2012

Antennas

Loc No.	Ant No.	Frequencies (MHz)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
3	1	000857.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000857.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000858.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000858.46250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000858.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000858.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000859.21250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000859.46250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000859.71250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000859.96250000	MO	1965		14K0F9W	35.000	35.000			
3	1	000809.01250000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000809.18750000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000809.58750000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000809.68750000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000854.01250000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000854.18750000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000854.58750000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
3	1	000854.68750000	MO	1965		14K0F9W	35.000	35.000			03-18-2009
4	1	000811.21250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000811.46250000	FX1	92		14K0F9W	30.000	30.000			

Licensee Name: LINCOLN, CITY OF

Call Sign: WNDX299

File Number: 0005479377

Print Date: 11-07-2012

Antennas

Loc No.	Ant No.	Frequencies (MHz)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
4	1	000811.71250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000811.96250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000812.21250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000812.46250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000812.71250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000812.96250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000813.21250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000813.46250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000813.71250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000813.96250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000814.21250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000814.46250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000814.71250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000814.96250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000809.01250000	FX1	92		14K0F9W	30.000	30.000			
4	1	000809.18750000	FX1	92		14K0F9W	30.000	30.000			
4	1	000809.58750000	FX1	92		14K0F9W	30.000	30.000			
4	1	000809.68750000	FX1	92		14K0F9W	30.000	30.000			

License Name: LINCOLN, CITY OF

Call Sign: WNDX299

File Number: 0005479377

Print Date: 11-07-2012

Control Points

Control Pt. No. 2

Address: 901 W. Bond St. Suite 110

City: Lincoln **County:** LANCASTER **State:** NE **Telephone Number:** (402)441-8425

Associated Call Signs

Waivers/Conditions:

Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Appendix 4 – EDACS User List

EDACS User List		
911		Nebraska State Patrol
911 Backup		Nebraska State Patrol - Capital Security
Air National Guard		Nebraska Surgery Center
Airport Authority		NRD
American Medical Response		Parks - Natural Resources
Animal Control		Parks - Operations
Blood Bank		Parks - Recreation
BNSF		Radio Maintenance
Bryan/LGH East		Red Cross
Bryan/LGH West		RF-Alvo
Building and Safety - Fire Inspectors		RF-Ashland
Daily Nebraskan		RF-Bennet
Engineering Services		RF-Ceresco
FBI		RF-Cortland
Fleet Services		RF-Crete
Health		RF-Eagle
Interop		RF-Firth
Journal Star		RF-Greenwood
KETV		RF-Hallam
KFOR		RF-Hickman
KLiN		RF-Malcom
KLKN-TV		RF-Pleasantdale
KOLN-TV		RF-Raymond
KRNU		RF-Southeast
Lancaster County Emergency Management		RF-Southwest
Lancaster County Sheriff		RF-Valparaiso
Landfill		RF-Waverly
Lincoln Fire & Rescue		Sales Stock
Lincoln Fire & Rescue - Ambulance Fund		St. Elizabeths Hospital
Lincoln Police Department		StarCare
Lincoln Public Schools		StarTran
Madonna		Street Maintenance
Media		Traffic Engineering
Midwest Medical		Unknown
Missing		UNL Parking
Missing		UNL Police
Nebraska Department of Roads		Waste Water
Nebraska Game and Parks		Water - Ashland
Nebraska Heart Hospital		Water - Lincoln
Nebraska State Fire Marshal		WOWT-TV
Nebraska State Health & Human Service		Youth Services Center

Appendix 5 – Delivered Audio Quality (DAQ)

DAQ Delivered Audio Quality	Subjective Performance Description
1	Unusable; speech present but unreadable.
2	Understandable with considerable effort. Frequent repetition due to noise/distortion.
3	Speech understandable with slight effort. Occasional repetition due to noise/distortion.
3.4	Speech understandable with repetition only rarely required. Some noise/distortion.
4	Speech easily understood. Occasional noise/distortion.
4.5	Speech easily understood. Infrequent noise/distortion.
5	Speech easily understood.

Appendix 6 – User Definitions

City Public Safety

City of Lincoln public service users include the following:

- Airport
- EMS
- Fire
- Heath
- Hospitals
- Police
- Youth Services

County Sheriff

- Lancaster County Sheriff Office

Rural Fire

In-County

- Bennet Fire and Rescue
- Firth Rural Fire District
- Hallam Volunteer Fire & Rescue
- Hickman Rural Fire Protection District
- Raymond Fire Department
- Southeast Rural Fire Department
- Southwest Rural Fire District
- Waverly Fire-Rescue

Out-of-County

- Ashland
- Ceresco
- Cortland
- Crete
- Eagle/Alvo
- Greenwood
- Malcolm
- Pleasant Dale
- Valparaiso

Public Service

City of Lincoln public service users include the following:

- Radio Maintenance
- Park and Rec
- Public Works

- Engineering Services
- Fleet Services
- Landfill
- StarTran
- Street Maintenance
- Waste Water
- Water

Lincoln Public Schools

- Lincoln Public Elementary Schools
- Lincoln Public High Schools
- Lincoln Public Middle Schools
- Lincoln Public School District Office

UPDATE TO STATION OPTIMIZATION STUDY

LINCOLN FIRE & RESCUE

August, 2014



This document supplements the 2012 Lincoln Fire & Rescue Station Optimization Study with updated data, information, and analysis.

Continued Population Growth

The optimization study was released in January, 2012, but data for the study was collected in 2011. Since that time, three new population estimates for Lincoln have been released by the United States Census Bureau. The Bureau issues estimates annually, but these are estimates as of July 1 or the preceding year. In 2011, when the optimization study was prepared, Lincoln's most recent population estimate was 259,096 as of July 1, 2010. Today, Lincoln's most recent population estimate is 268,738 as of July 1, 2013. The increase is 9,642 or 3.7%. Lincoln is growing by about 3,300 people every year.

Annexations

Since 2011, Lincoln land area was 90.8 square miles. Annexations in 2012, 2013, and 2014 have occurred, raising the area by over two square miles, to 98.82 square miles. Most of these annexations have occurred in the areas that would be served by the four stations identified in the optimization study.

New Development

Accompanying growth has been new development. In 2012, 2013, and the first seven months of 2014, 8,359 building permits were issued for new construction. Of these, 3,416 were for residential dwellings. Much of this new development continues to occur at the fringe in three of the four areas identified as optimal sites for the location of fire stations: near 84th and Holdrege, near 84th and Pioneers, and near 70th and Pine Lake Road. The optimization study considered the future service area of Lincoln, as identified in the comprehensive plan. Since new development has occurred within areas already anticipated, it does not materially impact the validity of the study. No major new roadway projects have taken place that would significantly alter response time projections. The primary impact of new development is that the supply of land available around the optimal fire station locations is dwindling. It will be important to analyze the coverage areas as specific parcels for stations are identified, to assess the impact of deviations from the optimal locations on the increment of improvement in coverage.

Response Activity

LF&R incident response activity continues to rise in relative proportion to the growth in population. In 2010, the year prior to the completion of the optimization study, total incident response was 19,602

76.52 % of which were for emergency medical service (EMS) incidents. In 2013 the total was 21,357 with 78.29% being EMS. From January 1, to August 31, 2014 there have been 15,260 incidents of which 79.51% were EMS. At this pace the department will respond to an estimated 22,890 total incidents in 2014, an increase of 1,533 over 2013.

St. Michael's Parish and School

The Catholic Diocese of Lincoln opened St. Michael's School just as the station optimization study was being prepared in the fall of 2011. Since that time, the school and church have been fully occupied. Considerable residential building has occurred in the immediate area. While this area was already within the future service limits identified in the comprehensive plan and considered in the optimization study, the rapidity of the building boom has been impressive. Simply put, the rooftops have sprung up more quickly than most citizens would realize.

Lincoln Public Schools Bond Issue

In the spring of 2014, citizens approved a bond issue for the Lincoln Public Schools. This bond issue includes the construction of two new schools: an elementary school northwest of 70th and Yankee Hill Road, and a middle school on land located in Jensen Park, near 84th and Yankee Hill Road. These areas are already slated for future development in the comprehensive plan, but based on past experience; the siting of these two schools may be expected to speed up nearby residential development.

Lincoln Police and Lincoln Fire & Rescue Colocation

Since the study was originally published, much more work has been done to combine pre-existing capital improvement projects from police and fire into a joint facility in southeast Lincoln. Preliminary site plans and take-off estimates have been produced, and LPD has calculated the likely savings in time, mileage, and fuel that would result from deployment from a southeast station, rather than downtown. It appears that either one of the southeast fire station locations, M or N, would be suitable as the joint facility. Land availability will be a major determinant, since the police/fire facility has a considerably larger footprint than a standalone fire station.

Summary

The 2012 optimization plan identified 8,469 addresses inside the city limits of Lincoln, but beyond four minutes travel time from a fire station. Since that data was originally collected, the number of addresses has grown to 9,783 as of August 25, 2014. This number will continue to grow, as land is annexed and as new development occurs. The optimization plan, however, remains valid since this growth has been within the projected areas for Lincoln's future service limit. In fact, the increment of improvement offered by the fire station optimization is now even better. Whereas in 2012 the plan would have reduced the number of addresses beyond four minutes by 60%, the reduction would now be approximately 66%. Rapid development in the far southeast corner of the City suggests that station M, optimally near 70th and Pine Lake Road, is a greater priority than it was in 2012.

Lincoln Fire & Rescue / Lincoln Police Department *Joint Use Facility Study*

February 20, 2014



DAVIS
DESIGN

architecture...engineering...interior design

I. Introduction and Description of Facility Needs

The Purpose of the proposed LF&R / LPD Joint Use Facility is to consolidate the operational needs of a fire station and police substation in one facility to better serve the surrounding neighborhoods / community. This consolidation will create efficiencies by:

- A. Ability to share common areas such as meeting rooms, fitness areas, and related support spaces which reduces total square footage needed if providing two new independent facilities.
- B. Eliminate the need to acquire two separate / independent properties and to reduce the total amount of land area needed.
- C. Reduce total costs (land acquisition, construction, operational) when compared to providing two new independent facilities.

In addition to the necessary space needs required for a Fire and Rescue Station and Police Sub-station, specific functional needs / goals were requested for the joint use facility.

- A. Provide a common shared entry for the public controlled by a shared reception / waiting area. Share as many other areas as possible.
- B. Locate the community meeting room near the common entrance for ease of accessibility.
- C. Separate the required sleeping rooms for LF&R personnel from other areas of the facility to minimize or eliminate noise distractions, while maintaining quick access to apparatus bay in emergency situations.
- D. Provide drive through apparatus bays, 4 for LF&R and 1 for LPD, to increase efficiency and maximize flexibility for response vehicles.

A primary goal of this study was to develop a preliminary design to meet the functional needs of LF&R and LPD and to include required parking and drive areas to help determine the amount of land required to support this type of facility.

The following shows specific space needs and parking requirements as identified by LF&R and LPD staff.

Public Safety Facility Fire / Police Station

Updated February 20, 2014

Program of Space Needs	Department	Approximate Size (w x l x h)	Area of Space	Quantity	Total Area (sf)		
Fire Apparatus Bays	Shared	15' x 60'	960	4	3,840		
LPD Indoor Vehicle & Equipment Storage	Shared	15' x 60'	960	1	960		
						4,800	
Workout Room	Shared	36' x 36' x 10' H	1,296	1	1,296		
Male Employee Locker Rooms / Showers (65+24 people)	Shared	30' x 40'	1,200	2	2,400		
Female Employee Locker Rooms / Showers (14+24 people)	Shared	20' x 40'	800	2	1,600		
Showers / Toilets / Sinks - Males	Shared	30' x 10'	300	1	300		
Showers / Toilets / Sinks - Females	Shared	20' x 10'	200	1	200		
Reception	Shared	12' x 14'	168	1	168		
Interview Room by Entry	Shared	10' x 10'	100	1	100		
Conference Room	Shared	10' x 15'	150	1	150		
Public Restrooms	Shared	5' x 8'	40	2	80		
Janitor Closets (apparatus, living)	Shared	4' x 6'	24	2	48		
Exterior Maintenance	Shared	10' x 16'	160	1	160		
<i>Subtotal</i>						6,502	
Storage / Laundry		LF&R	6' x 60'	360	1	360	
Medical / Clean Storage		LF&R	10' x 10'	100	1	100	
Breath / Air Refill Station Room		LF&R	10' x 10'	100	1	100	
Sleeping Quarters (separate from other areas)		LF&R	8' x 10'	80	14	1,120	
Day Room (14 recliners plus television)		LF&R	30' x 30'	900	1	900	
Kitchen		LF&R	12' x 16'	192	1	192	
Dining		LF&R	16' x 20'	320	1	320	
Offices		LF&R	10' x 10'	100	2	200	
Record Storage / Copy / Supplies		LF&R	8' x 10'	80	1	80	
Offices		LPD	12' x 14'	168	6	1,008	
Report Room		LPD	30' x 20'	600	1	600	

Evidence Room		LPD	16' x 12'	192	1	192	
Store Room / Equipment Room		LPD	15' x 20'	300	1	300	
Lineup Room		LPD	30' x 30'	900	1	900	
Interview Rooms (1 monitor room)		LPD	10' x 10'	100	3	300	
Break Room		LPD	12' x 14'	168	1	168	
Bathrooms for Offices		LPD	5' x 8'	40	2	80	
Project Pod		LPD	16' x 16'	256	1	256	
Suspect Bathroom		LPD	5' x 8'	40	1	40	
	<i>Subtotal</i>						<i>7,216</i>
Basement Shelter / Meeting Room (meeting room near front entrance)	Shared		40' x 40'	1,600	1	1,600	
Stairs to Basement Shelter	Shared		4' x 20' (estimated)	80	1	80	
Mechanical / Electrical	Shared		20' x 20' (estimated)	400	1	400	
	<i>Subtotal</i>						<i>2,080</i>
	<i>Total</i>						<i>20,598</i>
Surface Vehicle Parking LF&R	28 stalls						
Surface Vehicle Parking LPD	75 stalls						
Surface Citizen Parking	12 stalls						
Surface Parking Total	115 stalls						

II. Proposed Preliminary Design

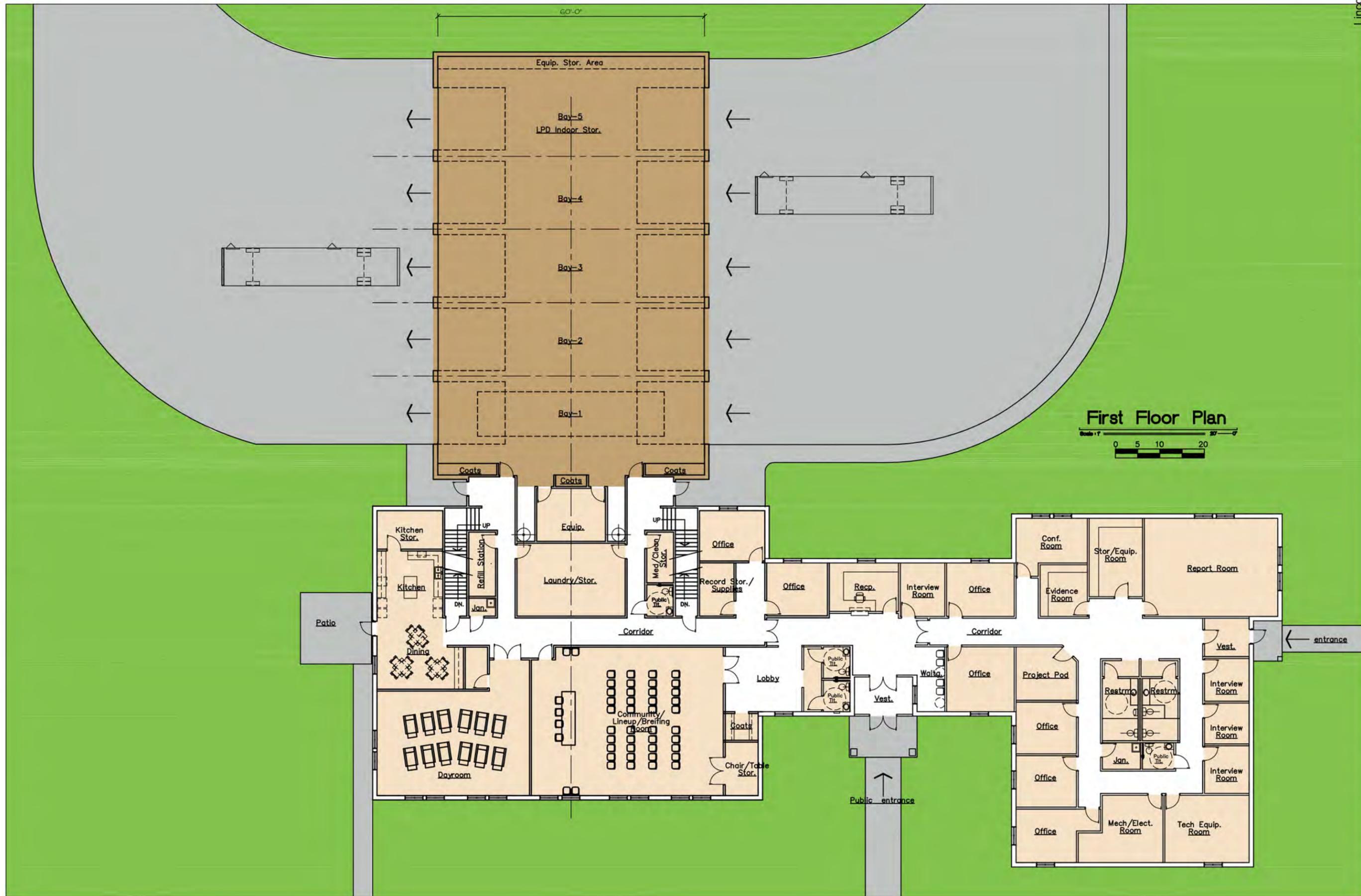
The following floor plans show a proposed facility with a total square footage of 26,771 square feet with 18,483 sf on the first or street level, 4,918 sf in the basement level, and 3,370 sf on a second level.

The first level will house the normal day-to-day office functions of a typical fire/rescue station and police substation. A large community meeting room (which doubles as a briefing room) seating up to 60 people is also located on first floor next to the main public entrance. A separate "escorted " entrance is provided for LPD use for suspects and possible witnesses.

The second level will house dorm rooms with adjacent lockers/toilets/shower for LF&R personnel. This location isolates the sleeping functions from the remaining facility.

The basement level will house the shared fitness/workout area, mechanical and electrical areas as well as lockers/toilets/showers for LPD personnel. The basement area can also serve as an effective storm shelter when needed.

The proposed design (as shown on the attached images) is intended to be residential in scale and form. Materials will be a combination of brick, maintenance free siding, and maintenance free metal roofing. The building will be a steel structure with typical metal stud and drywall construction in office and support areas and concrete masonry in areas that require more durable finishes.



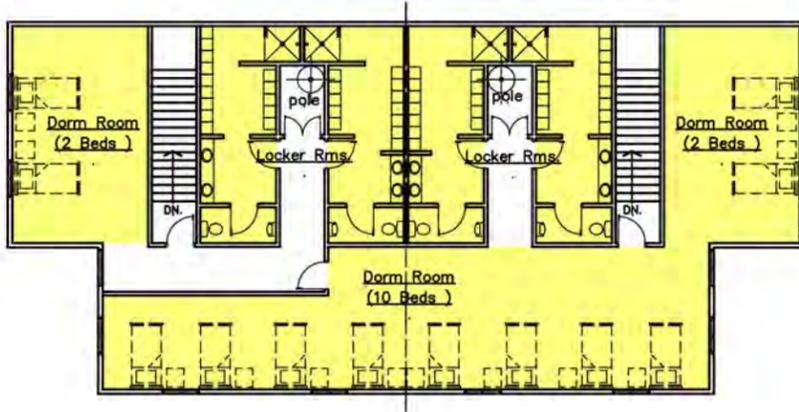
First Floor Plan
 Scale: 1" = 10'-0"
 0 5 10 20

Lincoln
 1221 N Street, Suite 600
 Lincoln NE 68508
 Phone 402-476-9700
 Fax 402-476-9722

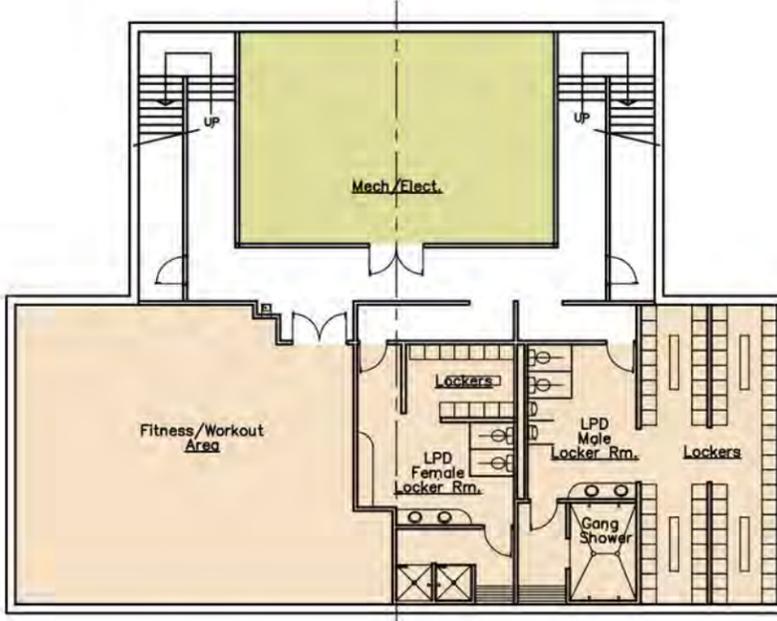
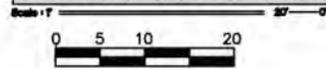
Vermillion
 15 East Main, Suite 201
 Vermillion SD 57069
 Phone 605-624-1081



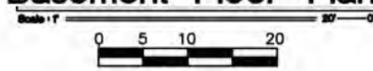
Public Safety Facility
 Lincoln, Nebraska



Second Floor Plan



Basement Floor Plan



Lincoln
1221 N Street, Suite 600
Lincoln, NE 68508
Phone 402-476-9700
Fax 402-476-9722



Vermillion
15 East Main, Suite 201
Vermillion, SD 57069
Phone 605-624-1081

Public Safety Facility
Lincoln, Nebraska





III. Possible Site Layout Options

Two theoretical sites were developed (single street lot and corner lot) to determine the functional land area required to support the activities of the new facility. As shown on the following drawings, approximate land area requirements range between 3.5 to 4.5 acres. Final site size and configuration will need to be made and evaluated on an individual basis.



Lincoln
 1221 N Street, Suite 600
 Lincoln NE 68508
 Phone 402-476-9700
 Fax 402-476-9722



Vermillion
 15 East Main, Suite 201
 Vermillion SD 57069
 Phone 605-624-1081

Public Safety Facility

Lincoln, Nebraska

IV. Estimate of Probable Construction Costs

The estimate on the following page identifies probable construction costs and includes costs for furniture/equipment, land acquisition, Architect/Engineer fees, and contingency.

The estimated costs are in today's dollars. All cost will likely need to be inflated if the project start is more than 6 months out from the date of this study.

ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

Principals:

JON P. DALTON, PE
MICHAEL D. MARSH, AIA
MATTHEW C. METCALF, AIA
WADE W. STANGE, AIA
MICHAEL A. WACHAL, PE

SENIOR ASSOCIATES:

J. EDWARD BUKACEK, AIA
DAN L. HEMSATH
BRYCE G. JOHNSON, MS PE
JAMES K. LUEDKE, PE
RENEE M. SHEIL
BRANDON M. SIRE, PE
GREGORY T. SMITH, AIA
DARIN D. SPERLING, PE
LEROY SVATORA, AIA

Lincoln:

1221 N STREET, STE. 600
LINCOLN, NEBRASKA 68508
PHONE: (402) 476-9700
FAX: (402) 476-9722

OTHER LOCATIONS:

VERMILLION, SOUTH DAKOTA

LINCOLN FIRE & RESCUE / LINCOLN POLICE DEPARTMENT
JOINT USE FACILITY STUDY

ESTIMATE OF PROBABLE CONSTRUCTION COSTS

FEBRUARY 20, 2014

I. Building Construction Costs

A. Basement - 4,918 sf x \$140/sf	\$ 688,520.00
B. First Floor Office and Support Space - 12,531 sf x \$150/sf.....	\$1,879,650.00
C. First Floor Apparatus Bay - 5,925 sf x \$160/sf	\$ 952,320.00
D. Second Floor Dorm / Lockers - 3,370 sf x \$160/sf	\$ 539,200.00

Subtotal..... \$4,059,690.00

II. Site Improvement Costs

A. 9" thick concrete pavement and base at apparatus drives 19,220 sf x \$6.50/sf	\$ 124,930.00
B. 5" thick concrete pavement and base at parking and sidewalks 63,245 sf x \$5.00/sf	\$ 316,225.00
C. Allowance for Site Utilities and Drainage.....	\$ 50,000.00
D. Allowance for Landscaping and Seeding	\$ 15,000.00

Subtotal..... \$ 506,155.00

Total..... \$4,565,845.00

Contingency at 5% \$ 228,292.25

\$4,794,137.2

5

A/E Fees at 7.5% \$ 359,560.29

Total..... \$5,153,697.40

E. Equipment and Furnishings Allowance.....	\$ 344,000.00
F. Land Acquisition Cost (4.36 acres) 189,922 sf x \$4.00/sf	\$ 759,686.00

***Total* \$6,257,383.40**

NOTE:

- As a point of reference, 2013 RS Means Building Construction Cost Data shows median costs for fire stations to be \$149/sf and median costs for offices to be \$129/sf, not including site work.

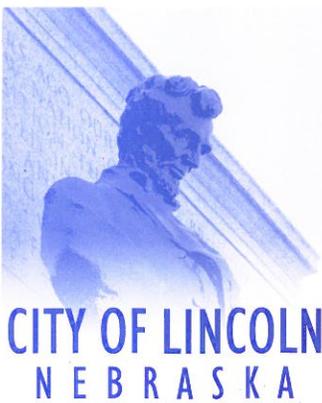
Mary M. Meyer

From: Randy W. Hoskins
Sent: Wednesday, September 10, 2014 2:03 PM
To: Council Packet
Cc: Miki Esposito
Subject: FW: Pre-Council Briefing Answers

Here is the information that I compiled based on the questions asked at the Pre-Council meeting on Monday:

- The existing right turn lane on Old Cheney at 27th Street is approximately 400' long. According to the Access Management Policy, this is what would be required for a right turn lane on a street with the existing conditions - a 45 MPH speed limit and a turning volume of 160 peak hour vehicles.
- In looking at the intersection of the CVS driveway within the right turn lane for the westbound to northbound movement near 48th and O, we've had four crashes in the last four years. One of the crashes resulted in injuries to the involved parties. If you look at the volumes of the traffic using the right turn lane and those exiting CVS, that would give a fairly high crash rate.

Randy Hoskins, P.E.
Assistant City Engineer



CITY OF LINCOLN
NEBRASKA

MAYOR CHRIS BEUTLER

lincoln.ne.gov

Urban Development Department
David Landis, Director
555 S. 10th Street
Suite 205
Lincoln, Nebraska 68508
402-441-7606
fax: 402-441-8711

MEMORANDUM

TO: Lincoln City Council Members
FROM: David Landis, Director, Urban Development Department
DATE: September 8, 2014
RE: 27th & R update

I was before you in July with a lease for a parking lot to be constructed on North 27th Street, with the owner of the adjacent City Mex Market Convenience store. You placed the lease on pending and directed staff to place signs on the property stating the availability of the City-owned property. Staff did as you directed and the signs were up for 30 days. Also as directed, I called Mike Olderbak, owner of the convenience store property. I was unable to speak with him directly any of the five times I called so I left detailed messages describing the situation and my phone number. None of my calls were returned, leading me to conclude that he remains uninterested in purchasing the City-owned property. As a result of the signs, we received four offers. In the order received they are:

- **Option 1:** offer from an existing merchant on North 27th Street. Proposed use is a used car and tire lot. Offered \$80,000, \$40,000 now and \$40,000 next year.
- **Option 2:** proposed use is a retail building with two bays featuring Middle Eastern architecture. If he has funds remaining after purchase of the land and construction, he may do a grocery store and lease the other bay or, if funds are not available, he would lease both bays. He would construct a plain building but if TIF is available, he will do an enhanced façade. The project does not rely on TIF to go forward. Offered \$98,000.
- **Option 3:** offer from Raul Lobo, owner of the City Mex store adjacent to the site. Proposed use is a parking lot, built to City design standards. Offered \$40,000.
- **Option 4:** offer from Fortunato Sanchez, owner of El Chaparro Restaurants. Proposed use is a Mexican restaurant, currently operates two others with a third under consideration – this would be the fourth location in Lincoln. Has been in business for 14 years. Offered \$98,000 with 30% (\$29,400) paid at closing and the balance paid in March.

Preliminary reaction from neighborhood representatives indicates disinclination for the used car and tire lot. Of the other three offers, the preference is the parking lot for the City Mex store: it supports an existing business, creates needed parking, allows smoother traffic flow, provides open space, and with the existing store it creates the opportunity for assembling a larger lot that may prompt more intensive redevelopment in the future. The second choice is El Chaparro

Memorandum to City Council Members
September 8, 2014
Page 2

Restaurants. This is a successful entrepreneur with a proven track record in Lincoln but although acceptable, is not preferred. More formal meetings will be held by the Hartley Neighborhood Association and the North 27th Street Business and Civic Association this week to consider the proposals. The Clinton Neighborhood Association will also be contacted and I will be able to provide an update on the outcome of these meetings by the end of the week. The Urban Development Department gives significant weight to these entities who have been our partners throughout the North 27th Street experience.

Given what we heard at the previous Council public hearing and qualms about the lease mechanism, it is my guess that either of the two preferred choices will be acceptable to you. Undoubtedly you have individual preferences as well, so if my assumption of acceptability is wrong or you have a strong preference between the two options, I would very much appreciate hearing from you before we select a course of action. I can be reached at 402-441-7126 or dlandis@lincoln.ne.gov. We will then be back before you for a public hearing and your approval of sale of the land.

Mary M. Meyer

From: David Landis
Sent: Thursday, September 11, 2014 10:27 AM
To: 'Jon Camp'
Cc: Council Packet
Subject: RE: Fiscal Impact Statement

Council Members: I received this request from Councilman Camp and want to share my response with all of you in the event you share these interests. Thank you. Dave Landis

Jon:
At the beginning of the fiscal year, we identify projects based on the goals and objectives identified in our HUD 5-year Strategic Plan and One Year Use of Funds. Budgets are developed for each project based on estimated costs. We monitor the use of funds throughout the year as projects are implemented and then make adjustments at the end of the fiscal year based on actual costs, as reflected in the Fiscal Impact Statement you attached. As is usually the case, some projects are under budget and some slightly over. The Fiscal Impact Statement identifies projects where adjustments were needed. Specific uses of the reallocated funds, as you requested, are for the project overall; we can't identify specific uses of the allocated funds. Below is a summary of each project including the Activity as identified in the Strategic Plan and then specific projects.

Activity: Focus Area Public Improvements - Complete public improvements in the Malone neighborhood and South Capitol area that implement projects identified in Focus Area Plans, "closer to home" strategies identified in the Antelope Valley and South Capitol Redevelopment Plans, and from Free to Grow. Projects include curbs, alleys, gutters, lighting and streetscape projects, sidewalk improvements, and tree planting. Specific projects in FY 13/14 include sidewalk improvements and the 11th Street Streetscape. The Fiscal Impact statement identifies separate line items for these activities as required by the City's accounting system and the Focus Area Activity is identified for HUD purposes. Funds are shifted from Focus Area to specific projects (in this case, sidewalks and 11th Street) as needed for contracts.

Activity: Support Community CROPS in the installation and operation of community gardens and orchards in LMI parks, other property owned by the public, and by non-profit organizations. The lack of food and accompanying issue of hunger is a priority need in Lincoln. In addition to providing food for low-income people, community gardens and orchards further sustainability by promoting urban agriculture, reducing transportation costs for food, and encourages healthy and ecologically sound food production. Projects: Construct Community Gardens and Orchards; Operations Support for Community CROPS. Funds were transferred out of the projects because they were not used.

Activity: Complete park improvements projects in LMI neighborhoods. Recreation and access to open spaces and open lands is an element of sustainable communities by promoting green space and healthy activities. Specific projects were Peter Pan Park and University Place Park improvements. University Place Park was completed for less than anticipated and Peter Pan was slightly more. The project, LMI Park Improvements, is for park improvements not yet identified; however, since the Transfers were determined, Lakeview Park at NW 20th and West Q has been identified for needed improvements. West O D-L-D Historic Park Improvements is in conjunction with the larger West O streetscape project and the centerpiece of the West O project. Project elements include landscaping, interpretive signage and pavers.

Activity: Continue support for the Homeless Management Information System (HMIS). HMIS is an electronic data collection system that stores longitudinal person-level information about people who access the homeless services system. Although not specifically identified as a priority area in the plan development process, addressing homelessness issues is an on-going priority for HUD and Urban Development. Transfer reflects unused funds.

Please let me know if you have further questions.

Dave

From: Jon Camp [<mailto:joncamp@lincolnhaymarket.com>]
Sent: Saturday, September 06, 2014 6:18 PM
To: David Landis
Cc: Mary M. Meyer
Subject: Fiscal Impact Statement

David:

Attached is the recent Fiscal Impact Statement. Would you please explain in further detail the uses of the reallocated funds. In particular, the items under Community Development on page 3.

Thanks in advance for this information,

Jon

JON A. CAMP
Haymarket Square/CH, Ltd.
200 Haymarket Square
808 P Street
P.O. Box 82307
Lincoln, NE 68501-2307

Office: 402.474.1838/402.474.1812
Fax: 402.474.1838
Cell: 402.560.1001

Email: joncamp@lincolnhaymarket.com
Website: www.lincolnhaymarket.com

Check our reception and event venues at:

<http://www.facebook.com/pages/Apothecary-Lofts-Ridnour-Rooms/173175799380032>

Mary M. Meyer

From: WebForm [none@lincoln.ne.gov]
Sent: Monday, September 08, 2014 10:27 PM
To: Jon Camp
Subject: InterLinc: Council Feedback

InterLinc: City Council Feedback for
Jon Camp

Name: Ms. Anne
Address: P.O. Box 143
City: Lockhart, TX 78644

Phone: 1-(512)-492-2572
Fax:
Email: replytome53@yahoo.com

Comment or Question:

Is it still legal to panhandle in the City of Lincoln?

If so, where?

On a street median with a sign and a small hand bucket?

Sitting against a wall, along a sidewalk with a sign and a donation bucket?

Do I need a permit to panhandle?

Please reply.

Sincerely,

Ms. Anne.

Dow Jones Reprints: This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers, use the Order Reprints tool at the bottom of any article or visit www.djreprints.com

- [See a sample reprint in PDF format](#)
- [Order a reprint of this article now](#)

REVIEW & OUTLOOK

Gina Raimondo's Vindication

The pension reformer easily beats her union-backed opponents.

Sept. 10, 2014 7:45 p.m. ET

Democrats run 13 state governments with little Republican opposition. So it's important that Democrats willing to reform government can prosper politically. That's what happened Tuesday in Rhode Island, where Treasurer Gina Raimondo beat her two union-backed opponents in the Democratic primary for Governor.

In 2011 Ms. Raimondo campaigned to reform state pensions that were less than 50% solvent. She persuaded a bipartisan majority in the legislature, including 77 of 94 Democrats, to raise the retirement age to 67 from 62, suspend retirees' cost-of-living adjustments, and shift workers to hybrid plans with a modest annuity and defined-contribution component. The reforms cut the unfunded liability by nearly half and are saving taxpayers hundreds of millions annually.

Opinion Video

Editorial Page Writer Alysia Finley on Gina Raimondo's win in the Rhode Island gubernatorial primary. Photo credit: Associated Press.

Ms. Raimondo is campaigning for Governor by hailing the reforms and stressing faster economic growth to reduce the state's 7.7% unemployment rate. She opposes higher taxes—even on the wealthy—since "we have the money. We just don't spend it wisely." She also argues that the way "to get more revenue is to get more people back to work" and "to grow the pie."

Government unions and Ms. Raimondo's opponents, Providence Mayor Angel Taveras and Clay Pell, grandson of the late six-term Senator Claiborne Pell, portrayed her as a creature of Wall Street. But Mr. Taveras had negotiated token pension changes with unions in 2012, and the city's pensions are now merely 30% funded—less than they were two years ago.

Ms. Raimondo won with 42% of the vote, compared to 29% for second-place Mr. Taveras amid record primary turnout. Her victory shows that politicians who make the case for pension reform can survive, and that growth can trump redistribution even in a liberal state. She's favored against GOP candidate Allan Fung in November.

Copyright 2014 Dow Jones & Company, Inc. All Rights Reserved

This copy is for your personal, non-commercial use only. Distribution and use of this material are governed by our [Subscriber Agreement](#) and by copyright law. For non-personal use or to order multiple copies, please contact Dow Jones Reprints at 1-800-843-0008 or visit www.djreprints.com

Mary M. Meyer

Subject: Fence placement on Old Cheney and grading issue

From: Craig E. Aldridge
Sent: Thursday, September 11, 2014 8:58 AM
To: 'Jon Camp'; Miki Esposito
Cc: Mary M. Meyer
Subject: RE: Fence placement on Old Cheney and grading issue

Councilman Camp:

Regarding the issues mentioned by Mr. Taylor below:

- 1) We are working to remedy the fence sleeve concerns
- 2) The wall height and configuration constructed and designed is the same as what the Taylors signed the Right-of-Way agreement on prior to bid letting. Retaining Wall and Cross Sectional drawings were included in the ROW agreement that they signed, so they should have been aware of what we were going to do. With that being said we will have the grading contractor flatten out the existing grade by working back further into the Temporary Easement. Hopefully this will soften the slope enough the appease the Taylors.
- 3) The stoplight poles are largely dictated by the geometrics of the roadways that intersect and are also large dictated by ADA guidelines, so we have a small window with which to put them. In this particular case they did in fact conflict with the Homeowners Association Signs located in the SE and SW corner of the intersection. We tried to work around these the best we could but unfortunately meeting the required guidelines for placement of the pole was more important than the signs.
- 4) The step downs for the wall are a tricky animal. By extending (or pulling back) to property lines we ultimately increase the cost of the wall or increase slope-downs and maintenance headaches. I have tried to remind residents that the purpose of the walls was not to flatten or platform peoples yards (or even maintain existing grade for that matter) but was merely to minimize grading impacts. With that being said we tried to find a balance between the two and the unfortunate drawback of this is stepdowns in the middle of properties.
- 5) The private utility box numbers and location are a matter that is out of City control. These were designed and constructed by private utility companies within their easements that were already in place. We merely coordinated our design with theirs.
- 6) Regarding payment for trees and sprinklers that were not moved. We anticipated that this might be an issue during design. This is another matter that really is out of City control. There are a number of ways to "skin the cat" when it comes to the wall construction. We designed the project (including grading limits, easements, ROW taking, tree removals) based on worst-case (OSHA) requirements. The Contractor has elected to construct the wall in a different (less-intrusive, OSHA violation) manner which saved a lot of trees/sprinklers that we already paid for. Our Spec. is written that we are not allowed to dictate Contractor operations, even if they violate OSHA regs. As a taxpayer myself, I appreciate Mr. Taylors concerns but we have heard from many, many more people that are grateful that we did not impact their trees/sprinklers/fences as they originally thought we would.

Please let me know if there is anything further that I can assist with regarding this matter.

Thanks.

From: Jon Camp [<mailto:joncamp@lincolnhaymarket.com>]
Sent: Tuesday, September 09, 2014 6:16 PM
To: Miki Esposito
Cc: Mary M. Meyer; Craig E. Aldridge; thomasktaylor@me.com
Subject: FW: Fence placement on Old Cheney and grading issue
Importance: High

Miki:

Please see the email below from Thomas Taylor. I know Craig has been working on this situation—can we remedy Mr. Taylor's concerns, which date back nearly 2 years in the Old Cheney widening project.

Thanks in advance for your assistance.

Jon

JON A. CAMP
Haymarket Square/CH, Ltd.
200 Haymarket Square
808 P Street
P.O. Box 82307
Lincoln, NE 68501-2307

Office: 402.474.1838/402.474.1812

Fax: 402.474.1838

Cell: 402.560.1001

Email: joncamp@lincolnhaymarket.com; Website: www.lincolnhaymarket.com

Check our reception and event venues at: <http://www.facebook.com/pages/Apothecary-Lofts-Ridnour-Rooms/173175799380032>

From: Thomas K Taylor [<mailto:thomasktaylor@me.com>]

Sent: Tuesday, September 9, 2014 5:50 PM

To: Craig Aldridge

Cc: Jon Camp

Subject: Fwd: Fence placement on Old Cheney and grading issue

Craig,

I guess I am going to have to live with your wall height because you are unwilling to work to make it the right way. If I run a line down the top of my fence running south to north to the current front edge of your wall, I see a "nose dive" in the line at the current fence height. I think that Barb and I figured about 18 inches to conform to the current slope of my fence. We both just figured that you must have been using Thomas Shafer as a measuring tool again with your calculations. As you can see from the numerous e-mails to you and Dave Menino, the grade of my yard has been an issue from the beginning. I have included an e-mail from you dated December 7, 2012 indicating that the contractor would do some grading to soften the step-down. Barb and I have opted to have you grade back in the easement area, per your suggestion to facilitate this so please coordinate that in your plan. I just sent you an e-mail about the additional sleeve need on the east edge of my lot for MY corner post. Also on the west corner post the sleeve is only about 18 inches deep. Whats up with that? I warned you that there was not enough room there for a post. I think we need to fix that because the corner posts are important in any fence.

I guess it is to the point that we are giving in because we have been deceived by the city so many times over this whole project. It is unfortunate that it has to be this way but the city and its administrators talk out of both sides of their mouths. It is no wonder that the residents that are affected by your projects have a lack of trust in your department.

It amazes me that the city will worry about stoplight arms sticking out too far into the street blocking the view of the capitol and go to the expense of changing them but your department can't figure out that it is tacky to put a stoplight pole in front of our additions Edenton South sign. So tacky that the residents opted to have them removed. It also amazes me that you couldn't figure out a way to put the step-downs at the property breaks instead of in the middle of the lots. This could have been done very easily. It also amazes me that the utility

boxes are a dozen feet into my yard instead of in the corner and NOW I have THREE when I used to have TWO. That could have been done with a little better planning. I It also amazes me that the city paid thousands of dollars for trees to be removed that didn't have to be removed and also, paid me 1300.00 to move a single sprinkler head two feet. By the way, it didn't need to be moved. Gee I wonder who is watching the expenses in your department. Don't EVER cry to me about how your department is so short of money when I see stuff like this.

Most of the residents are wondering how many more times we are going to be shafted on this project. You know, there have been absolutely no benefits for the residents at all in fact... we have incurred more expense and labor in our day to day lives with your project.

Tom

Begin forwarded message:

From: "Craig E. Aldridge" <caldridge@lincoln.ne.gov>

Subject: RE: Fence placement on Old Cheney

Date: December 7, 2012 8:24:25 AM CST

To: 'Thomas K Taylor' <thomasktaylor@me.com>

Understandable. I know the Stone Strong people are aware of this and work with grading contractor to "soften" this with earthwork in these areas.

In your particular instance we have called for a ½ stone course for the stepdown. This cuts the drop from 3 ft. to 1 ½ ft. Still a drop but much better than 3 ft.

From: Thomas K Taylor [<mailto:thomasktaylor@me.com>]

Sent: Friday, December 07, 2012 8:08 AM

To: Craig E. Aldridge

Subject: Re: Fence placement on Old Cheney

Craig,

I am just concerned about the potential of a huge step up or down on the end of the wall which could create a slope and fence problem.

Tom

On Dec 7, 2012, at 8:00 AM, Craig E. Aldridge wrote:

I apologize. There might have been some miscommunication in previous conversations. The Stone Strong wall has been what we have intended to put in from Day 1. We did briefly look at a small block wall in the beginning but quickly ruled it out due to the large lateral earth pressures that some of the cuts create in this area. From a structural standpoint the large block wall is appropriate for this project. While the blocks themselves are 3' x 8' the wall face is broken down into smaller block pattern. This is similar to what the blocks at 84th & Van Dorn are. Large blocks with smaller block patterning on the face. The face pattern at 84th & Van Dorn may be slightly different than what we are proposing, however.

If you want a really good example of what we are proposing, the walls on Pine Lake Rd. from 40th to 56th St. are your best example.

Again, I apologize for any misunderstanding.

From: Thomas K Taylor [<mailto:thomasktaylor@me.com>]

Sent: Friday, December 07, 2012 7:46 AM

To: Craig E. Aldridge
Subject: Re: Fence placement on Old Cheney

Craig,

Previous conversations with you indicated that the block size would be a smaller size similar to that around the shopping center just south of 84th and Van Dorn. When did this change and why did this change. You promised a aesthetically pleasing appearance and not the HUGE blocks.

Tom

On Dec 7, 2012, at 6:35 AM, Craig E. Aldridge wrote:

Mr. Taylor:

Post sleeves will be just over a full block deep into the wall. See the sleeve detail attached. Block height is 36" and the sleeves being installed will be 8" diameter by 42" deep.

Typically the holes line themselves up due to the staggering of the block layers. The wall contractor may have to do some slight shifting of courses to get things to line up so that post sleeves can be installed on property line but it is typically never an issue as there is plenty of void space in the blocks.

For more information on Stone Strong walls I have attached a link to their website below. They have tons of detail drawings and information that you can browse if you are curious. Let me know if you have any further questions.

Thanks.

<http://www.stonestrong.com/>

From: Thomas K Taylor [<mailto:thomasktaylor@me.com>]
Sent: Thursday, December 06, 2012 4:22 PM
To: Craig E. Aldridge
Subject: re: Fence placement on Old Cheney

Craig,

Can you tell me how many blocks deep, or how deep the fence posts will be set in the Wall that you are constructing. It seems pretty obvious that they would have to be several blocks deep to keep the fence from blowing over. Do they line up the holes in the blocks as they are constructing it so they can be set more than one or two blocks deep and how tall are the blocks?

Thomas Taylor

Mary M. Meyer

Subject: FW: Fence placement on Old Cheney and grading issue

From: Jon Camp [<mailto:joncamp@lincolnhaymarket.com>]
Sent: Thursday, September 11, 2014 2:04 PM
To: Craig E. Aldridge
Cc: Miki Esposito; Mary M. Meyer
Subject: FW: Fence placement on Old Cheney and grading issue

Craig:

Have you communicated the items in your email below, to Mr. Taylor. If not, I would greatly appreciate your doing so and copying me on the email.

Thank you,

Jon
Lincoln City Council

From: Craig E. Aldridge
Sent: Thursday, September 11, 2014 8:58 AM
To: 'Jon Camp'; Miki Esposito
Cc: Mary M. Meyer
Subject: RE: Fence placement on Old Cheney and grading issue

Councilman Camp:

Regarding the issues mentioned by Mr. Taylor below:

- 1) We are working to remedy the fence sleeve concerns
- 2) The wall height and configuration constructed and designed is the same as what the Taylors signed the Right-of-Way agreement on prior to bid letting. Retaining Wall and Cross Sectional drawings were included in the ROW agreement that they signed, so they should have been aware of what we were going to do. With that being said we will have the grading contractor flatten out the existing grade by working back further into the Temporary Easement. Hopefully this will soften the slope enough the appease the Taylors.
- 3) The stoplight poles are largely dictated by the geometrics of the roadways that intersect and are also large dictated by ADA guidelines, so we have a small window with which to put them. In this particular case they did in fact conflict with the Homeowners Association Signs located in the SE and SW corner of the intersection. We tried to work around these the best we could but unfortunately meeting the required guidelines for placement of the pole was more important than the signs.
- 4) The step downs for the wall are a tricky animal. By extending (or pulling back) to property lines we ultimately increase the cost of the wall or increase slope-downs and maintenance headaches. I have tried to remind residents that the purpose of the walls was not to flatten or platform peoples yards (or even maintain existing grade for that matter) but was merely to minimize grading impacts. With that being said we tried to find a balance between the two and the unfortunate drawback of this is stepdowns in the middle of properties.
- 5) The private utility box numbers and location are a matter that is out of City control. These were designed and constructed by private utility companies within their easements that were already in place. We merely coordinated our design with theirs.

6) Regarding payment for trees and sprinklers that were not moved. We anticipated that this might be an issue during design. This is another matter that really is out of City control. There are a number of ways to “skin the cat” when it comes to the wall construction. We designed the project (including grading limits, easements, ROW taking, tree removals) based on worst-case (OSHA) requirements. The Contractor has elected to construct the wall in a different (less-intrusive, OSHA violation) manner which saved a lot of trees/sprinklers that we already paid for. Our Spec. is written that we are not allowed to dictate Contractor operations, even if they violate OSHA regs. As a taxpayer myself, I appreciate Mr. Taylors concerns but we have heard from many, many more people that are grateful that we did not impact their trees/sprinklers/fences as they originally thought we would.

Please let me know if there is anything further that I can assist with regarding this matter.

Thanks.

From: Jon Camp [<mailto:joncamp@lincolnhaymarket.com>]
Sent: Tuesday, September 09, 2014 6:16 PM
To: Miki Esposito
Cc: Mary M. Meyer; Craig E. Aldridge; thomasktaylor@me.com
Subject: FW: Fence placement on Old Cheney and grading issue
Importance: High

Mary M. Meyer

From: Becky Cole [soundguy950@hotmail.com]
Sent: Monday, September 08, 2014 2:42 PM
Subject: 911 system

Instead of tearing down 2 fire stations and building 3 more, why not leave the 2 so they can continue to serve the commercial and residential that they now serve. Then, onto the fire station by South Street, a police station could be added. This would protect Lincoln's water tower and Lincoln's water supply. Homeland Security was worried enough about Lincoln's water supply that they built a fence around the water tower. This fence is not tall enough that someone could not crawl over or someone could cut through the wire. With a police station and fire station beside it, it would be continued to be protected 24/7. This way only 1 new fire station would have to be built. One (1) new station and the updated 911 system would now be at a much more reasonable cost. Funds for these 2 things could come from personnel costs. The private sector doesn't have all the wonderful benefits.

DIRECTORS' AGENDA
ADDENDUM
MONDAY, SEPTEMBER 15, 2014

I. CITY CLERK

II. MAYOR & DIRECTORS' CORRESPONDENCE

MAYOR

1. NEWS ADVISORY. Mayor Beutler's public schedule for the week of September 13, 2014 through September 19, 2014.
2. NEWS RELEASE. Section of West A Street to close Monday for sewer work.

III. DIRECTORS

PLANNING DEPARTMENT

1. Historic Preservation Commission meeting agenda for September 18, 2014.

URBAN DEVELOPMENT/HOUSING REHAB & REAL ESTATE

1. Street and alley vacation, No. 14007, Sherman Court.

IV. COUNCIL MEMBERS

JON CAMP

1. Councilman Camp replying to Becky Cole on her suggestions regarding new, and old, fire stations.
 - a. On Directors' Meeting agenda, Citizen Correspondence - **From:** Becky Cole **Subject:** 911 system "Instead of tearing down 2 fire stations and building 3 more, why not leave the 2 so they can continue to serve the commercial and residential that they now serve. Then, onto the fire station by South Street, a police station could be added. This would protect Lincoln's water tower and Lincoln's water supply. Homeland Security was worried enough about Lincoln's water supply that they built a fence around the water tower. This fence is not tall enough that someone could not crawl over or someone could cut through the wire. With a police station and fire station beside it, it would be continued to be protected 24/7. This way only 1 new fire station would have to be built. One (1) new station and the updated 911 system would now be at a much more reasonable cost. Funds for these 2 things could come from personnel costs. The private sector doesn't have all the wonderful benefits."

V. CORRESPONDENCE FROM CITIZENS

1. LES Administrative Board meeting agenda for Friday, September 19, 2014. Full agenda and materials can be found at www.les.com
2. Casey Conrad, President, North 27th Street Business and Civic Association, attaching Association's letter of recommendation for city owned property near 27th and R Streets.
 - a. Letter from North 27th Street Business and Civic Association, Casey Conrad, President, with recommendation on the 27th and R Streets property.

Date: September 12, 2014

Contact: Diane Gonzolas, Citizen Information Center, 402-441-7831

Mayor Beutler's Public Schedule
Week of September 13 through 19, 2014
Schedule subject to change

Saturday, September 13

- Spotlight Gala benefitting Voices for Children in Nebraska, award presentation - 7 p.m., Embassy Suites, 12520 Westport Parkway, La Vista

Monday, September 15

- Nebraska League of Conservation Voters event, remarks - 5:30 p.m., Ayars & Ayars, 2436 N. 48th St.

Tuesday, September 16

- KLIN - 8:10 a.m.
- Opening reception of exhibit "Things Speak: Storied Objects from Lincoln Collections," remarks - 5:30 p.m., Sheldon Museum of Art, 12th and "R" streets

Thursday, September 18

- KFOR - 7:45 a.m.
- Ribbon-cutting for Hilton Garden Inn outdoor art by Jun Kaneko, remarks - 10 a.m., 8th and "R" streets
- Reception celebrating Jack Sock, professional tennis player from Lincoln, remarks - 6:30 p.m., Woods Park Tennis Center, 33rd and "J" streets

Friday, September 19

- Junior Achievement's tailgate dinner and auction - 5:30 p.m., Cornhusker Marriott Hotel, 333 S. 13th St.

PUBLIC WORKS AND UTILITIES DEPARTMENT
Engineering Services, 949 West Bond., Lincoln, NE 68521, 402-441-7711

FOR IMMEDIATE RELEASE: September 12, 2014

FOR MORE INFORMATION: Harry Kroos, Engineering Services, 402-429-4872

SECTION OF WEST “A” TO CLOSE MONDAY FOR SEWER WORK

Beginning Monday, West “A” Street will close to through traffic from S. Coddington to S.W. 40th St. for sanitary sewer work. The roadway is expected to reopen Friday, September 19.

Access to local properties along West “A” Street will be maintained. During construction, traffic will be rerouted using South Coddington, West Van Dorn Street and S.W. 40th Street.

For more information on City street construction and rehabilitation projects, visit the City website at lincoln.ne.gov (keyword: projects).

Historic Preservation Commission

The City of Lincoln Historic Preservation Commission will hold a public meeting on Thursday, **September 18, 2014**. The meeting will convene at **1:30 p.m.** in Room 214 in Development Services Center, 2nd floor, **County-City Building**, 555 S. 10th Street, Lincoln, Nebraska, to consider the following agenda. For more information, contact the Planning Department at (402) 441-7491.

AGENDA September 18, 2014

1. Approval of meeting record of HPC meeting of August 21, 2014.
2. Opportunity for persons with limited time or with an item not appearing on the agenda to address the Commission.

HEARING AND ACTION

3. Application by 700 O LLC for a certificate of appropriateness for demolition and new construction at 700 O Street in the Haymarket Landmark District.
4. Application by Keith Dubas for work at 1901 Pepper St. in the Franklin Heights Landmark District.
5. Application by Nebraska Neon Sign Company on behalf of HUDL for a certificate of appropriateness for signs at 151 N. 8th Street in the Haymarket Landmark District.
6. Application by US Properties for a Certificate of Appropriateness for work at the Grand Manse, also known as the Old Federal Building at 129 N. 10th Street, a designated landmark.

DISCUSSION

7. Review and recommendation on redevelopment proposal by Argent/Speedway for "Journey Senior Living" at Lumberworks Garage.
8. Briefing on South Haymarket Plan (Stacey Hageman).
9. Update on Gallery Alley.
10. Staff Report & Misc.: Koop House nomination to National Register, etc.

The Historic Preservation Commission agenda may be accessed on the Internet at
<http://lincoln.ne.gov/city/plan/boards/hpc/hpc.htm>

**For further information on Historic Preservation in Lincoln, visit
<http://lincoln.ne.gov/city/plan/long/hp/hp.htm>**

ACCOMMODATION NOTICE

The City of Lincoln complies with Title VI of the Civil Rights Act of 1964 and Section 504 of the Rehabilitation Act of 1973 guidelines. Ensuring the public's access to and participating in public meetings is a priority for the City of Lincoln. In the event you are in need of a reasonable accommodation in order to attend or participate in a public meeting conducted by the City of Lincoln, please contact the Director of Equity and Diversity, Lincoln Commission on Human Rights, at 402 441-7624 as soon as possible before the scheduled meeting date in order to make your request.

INTEROFFICE MEMORANDUM

TO: Mayor Beutler
& City Council Members

FROM: Clinton W. Thomas

DEPARTMENT: City Council Office

DEPARTMENT: Housing Rehab & Real Estate Division

ATTENTION:

DATE: September 11, 2014

COPIES TO: Teresa J. Meier
Marvin Krout
Jeff Kirkpatrick
Byron Blum, Bldg & Safety
Jean Preister, Planning
Sandy Dubas, City Clerk's Office
Jamie Phillips, Mayor's Office

SUBJECT: Street & Alley Vacation No. 14007
Sherman Court

A request has been made to vacate the street stub generally located at Sherman Street and Holmes Park Road. The area to be vacated was viewed and appears as a paved street return into an open field. An overhead electric transmission line was visible in the area as well as a fire hydrant which would indicate the existence of a water line in the vicinity. Staff has indicated the existence of a sanitary sewer as well as natural gas facilities within the area. An easement will be retained for existing and future utilities.

While areas such as this typically have little or no value, in and of themselves, they do take on the value of the abutting property once they are assembled into it. In this case, the amount of utilities located within the area will generally make the area of little use for anything other than open space or a driveway. As such, a nominal value of \$0.25 per square foot is considered appropriate. The calculations are as follows:

$$3,041 \text{ sq. ft.} \times \$0.25/\text{sq. ft.} = \$760.25 \quad \text{Called } \$760$$

Therefore, if the area is to be vacated, it is recommended that the area be sold to the abutting property owner for \$760.

Respectfully submitted,



Clinton W. Thomas
Certified General Appraiser #990023

Mary M. Meyer

From: Jon Camp [joncamp@lincolnhaymarket.com]
Sent: Sunday, September 14, 2014 3:25 PM
To: soundguy950@hotmail.com
Cc: Mary M. Meyer
Subject: Great Suggestions

Importance: High

Becky:

Thanks for the email you sent. Your suggestions have merit and should be included in the discussion!!! Since there is the land the City owns adjacent to the 84th & South Street fire station and the water tower, cost for land would be eliminated or reduced.

This may not work, but I hope that your suggestions will be discussed. My desire is to solve the public safety matter in a 3-step approach:

1. Define/identify the needs
2. Evaluate solutions
3. Quantify the solutions and how to finance the ultimate project.

Please watch our progress. Tomorrow, Monday, September 15th, the City Council has a Pre-Council meeting with Public Safety Director Tom Casady and Fire Chief John Huff.

Best regards,

Jon

JON CAMP
Lincoln City Council

Office: 402.474.1838/402.474.1812
Fax: 402.474.1838
Cell: 402.560.1001

Email: joncamp@lincolnhaymarket.com



1040 O Street, P.O. Box 80869
Lincoln, NE 68501-0869

AGENDA
LES ADMINISTRATIVE BOARD

Friday, September 19, 2014

9:30 A.M.

LES Board Room

1040 "O" Street

9:30 A.M.

- 1. Call to Order**
- 2. Approval of Minutes of the August 15, 2014 Regular Meeting of the LES Administrative Board**
- 3. Comments from Customers**
- 4. Introduction and Recognition of Staff**
 - A. 20 Years – Jon Rauner, Project Inspector, Energy Delivery
Scott Witte, Equipment Mechanic 1st Class, Corporate Services
 - B. 30 Years – Ruth Gewecke, Senior Administrative Assistant, Energy Delivery
Jeanne Heim, Administrative Assistant II, Customer Services
 - C. 40 Years – Roger Gruntorad, Material Handler 1st Class, Corporate Services
- 5. Committee Reports**
 - A. Budget & Rates Committee
 - B. Finance & Audit Committee
 - C. Operations & Power Supply Committee
 - D. Personnel & Organization Committee
- 6. Administrator & CEO Reports**
 - A. 2015 Proposed Budget Overview
 - B. Report on 2014 LES United Way/Community Health Charities/
Community Services Fund Pacesetter Campaign
 - C. Peak Load and Power Purchase Program
- 7. Chief Operating Officer's Reports**
 - A. SunShares Update
 - B. LES Demographics and Succession Planning
- 8. Other Business**
 - A. Monthly Financial and Power Supply Reports
 - B. Miscellaneous Information

9. Adjournment

* Denotes Action Items

Public Meeting on 2015 Proposed Budget October 2, 2014.
Next Regular Administrative Board meeting (2015 Budget Adoption) Friday, October 17, 2014.

Mary M. Meyer

From: casey conrad [casey.conrad@gmail.com]
Sent: Friday, September 12, 2014 3:44 PM
To: Council Packet; David Landis; Wynn S. Hjernstad; Ernesto Castillo; Curt Donaldson; Mayor
Subject: North 27th Street Business and Civic Association Recommendation for 27th & R
Attachments: Lincoln City Council Letter Sept 12 2014.doc

City Council Members and Mayor Chris Beutler,

The attached letter/memo contains our recommendation for the city owned property located near 27th and R Streets.

If you should have any questions or concerns please feel free to call me personally, my last 25 years of work has all taken place upon North 27th Street.

Thank you,

Casey Conrad
President
North 27th Street Business and Civic Association
Owner - Heartland Optical



North 27th Street
Business & Civic Association

To: Lincoln City Council Members

From: North 27th Street Business and Civic Association

Date: Sept 11, 2014

RE: 27th & R

The North 27th Street Business and Civic association held a board meeting on 9/10/2014 to specifically discuss the four options proposed at 27th and R Street. This property has been a topic in our board meetings dating back many years and where the idea of a parking lot was created.

The basis of our original intent for this property was to rid North 27th street of a safety hazard, the alleyway serving as the entrance of Lobo's City Mex. The bottleneck created at this intersection has been the cause of accidents and traffic congestion. The use of TIF to create a positive and creative solution seemed intelligent. We worked with the Urban Development department for the past 3 years on conceptual ideas and drawings to remedy what we see as a problem on our street.

We urge the council to pursue the parking lot option for this property. Our organization feels it serves the greater purpose for North 27th Street as well as relieves the city of an ongoing traffic hazard.

There are numerous properties along North 27th Street which the city owns that would be suitable for the other three options. We would welcome these businesses along our corridor.

Casey Conrad
President North 27th Street Business and Civic Association
Heartland Optical – Owner – located at 1012 N 27th Street

MINUTES
DIRECTORS' MEETING
SEPTEMBER 15, 2014

Present: Doug Emery, Chair; Trent Fellers, Vice Chair; Jon Camp; Roy Christensen; Trent Fellers; and Leirion Gaylor Baird

Absent: Carl Eskridge

Others: Teresa Meier, City Clerk; and Rick Hoppe, Chief of Staff

Chair Emery opened the meeting at 2:05 p.m. and announced the location of the Open Meetings Act.

I. CITY CLERK

Meier, in review of today's agenda, stated #1 introduced by Fellers. Items #2 and #3 would be introduced by Gaylor Baird.

Under Liquor Resolutions will call Items #7 and #8 together. We did contact them after last week's meeting and the excuse for not attending was "we had other meetings to attend". Emery inquired on #6, and why they didn't show? Meier replied she contacted her and Ms. Page claimed she did not receive notice, but the Clerk's office never received anything back from the Post Office.

II. MAYOR

1. NEWS ADVISORY. Mayor Beutler will hold a news conference Tuesday, September 9th, 11:00 a.m., at 555 S. 10th Street, in the Mayor's conference room to discuss improvements planned to make a Haymarket alley more pedestrian friendly.
2. NEWS RELEASE. Gallery alley to become safe and inviting pedestrian passage.
3. Fiscal Impact Statement, Public Works & Utilities, August 29, 2014.
4. NEWS RELEASE. NWU Sports Network announces Nebraska Wesleyan football telecast schedule.
5. NEWS RELEASE. Public invited to attend meeting and take survey on Bike Share Program.

Rick Hoppe, Chief of Staff

Hoppe stated to Gaylor Baird that he understood she had questions for the Public Works Department regarding the Railroad Transportation Safety District levy. Would you like us to address at this time? Gaylor Baird replied possibly during the Organizational Meeting when we have the RTSD report. Hoppe agreed.

III. DIRECTORS CORRESPONDENCE

HEALTH DEPARTMENT

1. NEWS RELEASE. Home visitation program achieves national accreditation.
2. Lincoln - Lancaster County Health Department August 2014 Department Report.
3. Lincoln - Lancaster County Health Department meeting minutes of August 12, 2014.

PLANNING DEPARTMENT

1. Administrative approvals by the Planning Director from September 2, 2014 through September 8, 2014.

PUBLIC SAFETY

1. Public Safety Radio System Assessment Report.
2. Update to Station Optimization Study, Lincoln Fire & Rescue.
3. Capital Improvement Program, Public Safety: Fire & Rescue; Police. (On file in City Council Office for review)
4. Lincoln Fire & Rescue/Lincoln Police Department: Joint Use Facility Study.
5. Station Optimization Study, Lincoln Fire & Rescue. (On file in City Council Office for review)

PUBLIC WORKS & UTILITIES/ENGINEERING

1. Randy Hoskins replying to question raised at the pre-council regarding right turn lanes.

URBAN DEVELOPMENT

1. Memorandum from David Landis, Director of Urban Development, regarding 27th and R Street availability of City-owned property.
2. David Landis, Director of Urban Development, replying to Councilman Camp on the recent fiscal impact statement. Councilman Camp's email attached.

IV. COUNCIL MEMBERS

JON CAMP

1. InterLinc correspondence from Ms. Anne regarding panhandling in the City of Lincoln.
2. Wall Street Journal article on Pension Reform.
3. Reply from Craig Aldridge to Councilman Camp on fence placement on Old Cheney Road and grading issue. Correspondence regarding this issue attached.
 - a) Request from Councilman Camp to Craig Aldridge for communication with Mr. Taylor.

V. CITIZEN CORRESPONDENCE

1. Becky Cole writing with suggestions on new, and old, fire stations.

VI. ADJOURNMENT

Chair Emery adjourned the meeting at 2:10 p.m.