

UTILITIES, ENERGY, & WASTE

VISION

Goshen utilities managers will be the stewards of the community's watershed, guardians of the city's environmental integrity, and providers of quality services to residents. Utilities will integrate community development with a guidance plan that improves existing infrastructure as well as opportunities for expansion that neither exceeds capacity nor extend service without compensation. The City will also develop programs that generate or conserve energy, reduce waste, and otherwise promote responsible use and reuse of resources.

Introduction

The Utilities, Energy, and Waste element of the Comprehensive Plan covers issues concerning wastewater treatment; municipal water supply, quality and service; stormwater management; energy use, conservation, and generation; groundwater protection; and solid waste disposal.

Management of municipal utilities not only preserves the health and quality of the community and its natural resources, it is a potent planning tool, providing both opportunity and control over how and where growth happens. The department provides significant economic support to the city and attention to its management, infrastructure, and policy are essential to the financial solvency of the municipality.

U-1 Goal
Match land uses with existing or potentially available utility services.

U-1 Programs

1. Set a reasonable municipal boundary for utility service.
2. Seek tools to receive appropriate compensation for costs associated with utility extensions (see impact fees section later in this chapter)
3. Co-opt or contract with a Geographical Information System licensee

U-1 Implementation

1. Identify acceptable points of connection into existing system.
2. Determine where planned municipal growth can occur with the least negative impact on the utility system.
3. Direct wastewater flow to underutilized portions of the existing system.
4. Work with Elkhart County to coordinate conservancy districts efforts that complement municipal boundaries.
5. Redevelop city infrastructure to support customers and to improve supporting service to the peripheral boundaries of the distribution and collection system.

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6. Place program under mutual control of engineering, utilities and planning.
7. Set reasonable goals and provide adequate funding.
8. Maintain utility, planning, engineering, transportation, environmental, housing, and neighborhood data in the GIS system.

U-2 Goal

Create and maintain a utility advisory document to aid and support municipal decisions.

U-2 Programs

1. Continue to collect, maintain, and disseminate utility information.
2. Utilize technical knowledge and utility modeling capabilities to evaluate new developments on a per case basis.
3. Develop a valve and hydrant maintenance program, including replacement and mapping into GIS system.

U-2 Implementation

1. Monitor the maintenance of the city's infrastructure.
2. Train employees to understand their utility.
3. Document the infrastructure for entry into the GIS system.
4. Include GIS coordinator in the development of forms for data entry.
5. Institute a system of cross checks to verify recorded data.
6. Use GIS to document maintenance and progress.

U-3 Goal

Protect and enhance the quality of ground and surface water resources.

U-3 Programs

1. Maintain and upgrade wastewater treatment to fulfill 'best practices' standards
2. Continue Combined Sewer Overflow separations, exploring and incorporating new 'best practices' standards as they become available
3. Comply with stormwater management requirements as they are developed by state and federal agencies.
4. Maintain continual evaluation of present land application program and handling of sludge.

U-3 Implementation

1. Increase daily flow capacity from 5 million to 7.5 million gallons, at minimum.
2. Increase first flush capacity from 12.5 to 21 million gallons, at minimum.
3. Maintain or reduce number of necessary plant bypasses.
4. Begin engineering for upgrade (now) before capacity and efficiency is compromised.
5. Map, evaluate and upgrade wastewater infrastructure.
6. Continue development of the Long Term Control Plan and amend as needed to meet state and federal standards.
7. Focus on sensitive areas (parks, river) for CSO remediation.
8. Continue a high level of environmental integrity in meeting standards for pre-treatment and effluent.
9. Maintain and update the Wellhead Protection Program
10. Evaluate ongoing injection well research to determine if there are issues to address.
11. Incorporate solutions into the Wellhead Protection Program.
12. Continue to address stormwater issues proactively and in combination with CSO remediation strategies.

U-4 Goal

Maintain and improve water services to the community.

U-4 Programs

1. Develop new wellfields to meet standards for 24-hour storage capacity.
2. Improve existing infrastructure.
3. Consider opportunities to interlock systems with neighboring municipalities.

U-4 Implementation

1. Locate wellfields where they will complement land use planning objectives, provide the greatest capacity for the expenditure, and protect the quality of water most effectively.
2. Purchase land in sufficient advance to prevent water quality compromise or development.
3. Use staff input and GIS mapping to prioritize infrastructure improvements.
4. Ensure power generation at existing and proposed well sites to reduce vulnerability to outages.



U-5 Goal Reduce fossil fuel use.

U-5 Programs

1. Evaluate the City's conservation programs and policies, internal and external.
2. Explore the use of renewable energy sources (solar, wind, hydroelectric, geothermal, biomass, conservation, etc.)

U-6 Goal Reduce toxins in the community.

U-6 Programs

1. Model sustainable practices for the maintenance of community greenspace.
2. Work with industry to monitor and develop alternatives to toxic products and processes.
3. Work with EPA, IDEM, SWCS, and NRCS to reduce point source pollution.

U-7 Goal Reduce solid waste

U-7 Programs and Implementation

Explore forms of source reduction programs and implement the best for Goshen, in these and other areas:

- In house programs to encourage government to reduce volume and toxicity of waste they produce.
- Policies and economic incentives to encourage reduction of consumer and business waste.
- Education to encourage government, business, and residents to purchase low-impact products and participate in source reduction programs.
- On-site business assistance programs to advise about using materials more efficiently, conserving resources and reducing waste generation.
- Salvage and reuse programs that divert materials from waste collection by extending the useful life of products.
- Backyard composting programs.

U-8 Goal

Develop municipal information resources for sustainable living and business practices, construction, waste reduction, recycling, reuse, health and safety.

U-8 Programs and Implementation

1. Develop with either staff or volunteers a municipal advisory capacity.
 - Identify grant opportunities for sustainability promotion and education.
 - Seek tax incentives to reduce waste and pollution.
 - Provide information on long-term economic, environmental and social impacts.
 - Facilitate participation in waste-reduction, emissions reduction, water quality protection, air quality enhancement and other federal, state and local programs (EPA WasteWise, EPA Water Quality Guidance programs, etc.)



An early postcard of the hydraulic canal, the source of Goshen's early water, steam, and electrical power, from 1860 through the next 100 years.

U-9 Goal

Provide excellent utility service.

U-7 Goal

Reduce solid waste.

U-9 Programs

1. Maintain and upgrade existing utility infrastructure.
2. Continue and enhance positive customer relations.
3. Assess service capacity and coordinate land use decisions accordingly.
4. Maintain public nature of city utilities.
5. Public utility helps maintain high level of personnel and service.
6. Utility department presently supports other city finances.

History of Goshen utilities

The first City water mains were constructed in the mid-1870s and ran from the Mill Race at Lincoln Avenue to Main Street. Three branches were extended from the first line within a year. In 1881, bonds were issued to expand the city waterworks, which was improved again in 1891. In 1892, the original wooden water mains were replaced with iron pipes in the downtown area and extended to North Thirds Street, North main Street and Sixth, Eighth, Ninth, Tenth, Douglas, Queen, and Oak Ridge streets.

In 1896, the City built a standpipe (water tower) for increased storage capacity and pressure. It was 140 feet high, had an inside diameter of 18 feet, and held 267,193 gallons of water.

To learn more about the City's current requirements and standards for wastewater collection and treatment, see the 52-page Ordinance 4072, adopted in 2002.

You can access an aerial photo of Elkhart County or St. Joseph County properties by going to macoggis.com. The photos are taken by airplane—section by section—in the early spring, before the trees leaf out, and cover features and structures on the land.

The City focused attention on public works again in the early 1930s, due to Congressional funding of these projects. Goshen received \$150,000 to electrify the city water works, built a new water tower at Ninth and Jackson streets and began plans for the construction of a new wastewater treatment plant and expanded sewer system.

At the same time, Goshen was granted federal funds to place street lights along Main Street. By the end of 1934, Goshen had received \$1,250,000 in federal funds for civic improvements. Though Goshen had generated electricity using water power up to 1920, the City purchased electric power until 1930 when the City Council decided to build a new electric generating plant. Despite strong opposition from area industrialists, the plant was constructed for \$27,404 for the building and \$238,000 for the machinery. Goshen generated its own power until 1961.

What is GIS?

A **Geographic Information System (GIS)** is a computer database that links textual information to spatial or geographic information. With GIS, the user can create maps that show information useful for planning, utilities, and natural resource management. But more than just creating and printing maps, a GIS stores information that can be referenced and updated digitally by city planners or the public.

Elkhart County has a GIS coordinator on staff. MACOG (Michiana Area Council of Governments) assisted with setting it up, but the County maintains it today. The system includes aerial photographs with contour lines showing topography, tax/parcel numbers, property lines, buildings, and roads.

Counties and municipalities often have an interest in sharing GIS information for mutual benefit; **Goshen should explore such a relationship with the County.**

Other GIS-compatible information that may be available to the City includes:

- The National Wetland Inventory
- The U.S. Department of Agriculture: digital version of the county's soil survey (CSP has downloaded this into a GIS)
- **The City's street tree inventory could be adapted for input into a GIS by a student intern with help from the City forester.**

GIS is helpful in planning for the natural environment by storing information on unique features such as wetlands and the urban forest. This would be the natural place to store information gathered in an environmental inventory, and would serve as a basis for a "Green Map" showing the City's environmental assets.

GIS can help planners with utilities and service grid design. It can even help neighborhood planning by storing specific neighborhood input and applying various scenarios to a map, for evaluating possibilities.

Goshen should explore adding GIS to its planning department. More sophisticated GIS data could eventually be made available for the public to access on the Internet or at City offices. Contracting or purchasing GIS software and analysts is a substantial financial commitment. ESRI, the maker of the most widespread GIS—ArcView—provides grants for GIS software and training.

Impact Fees – an Overview

An impact fee may be imposed on new real estate development by a City (“Unit”) to defray or mitigate the costs of infrastructure. These may include:

- sanitary sewer or waste water treatment facility
- park or recreation facility
- roads and bridges
- drainage or flood control
- water treatment, storage, or distribution

Impact fees must be adopted by ordinance and require the establishment of an impact fee advisory committee, appointed by the executive of the Unit and composed of between five and ten members, 40 percent of whom represent the development, building, and real estate industries.

The ordinance must establish one or more impact zones for each infrastructure type covered by the ordinance and can apply only to new development requiring a building permit that creates the need for additional infrastructure.

The Unit imposing the impact fee must have a comprehensive plan and a zone improvement plan (ZIP) which contains information relating to current infrastructure, estimated development in the following ten years, infrastructure needs with respect to development during that period, and sources of revenue and amounts of money used to pay for infrastructure during the previous five years.

A Growth Management Strategy – the Urban Service Boundary

Urban Service Areas are being established (sometimes required by state statute) in many communities to control the costs associated with uncontrolled growth, or sprawl. Though some of these costs are less tangible than others (loss of farm and open land, air pollution, abandonment of central cities) the most obvious costs are also the most considerable – those related to the provision of services such as water, sewer, roads, fire and police protection, schools, etc.

An Urban Service Boundary is a tool that helps determine where and how much growth will occur based on the availability and cost of services. The boundary, in essence, draws an imaginary line where the community no longer feels it can efficiently provide services.

A second tier is usually designated as well; an expansion area or reserve where services will be provided within a defined planning period.

Typical steps required to establish an urban service boundary include:

1. Identify the types of services that will be provided (municipal utilities being the most common, because of cost and limitations.)
2. Develop an inventory of facilities for each service:
 - map existing services
 - set plans and policies for extension
 - determine level of service provided
 - assess adequacy and condition of services and facilities
 - analyze capacity
 - draw timetable for planned capital improvements.
3. Gather demographic data, including current and forecasted population, housing units, land uses, and proposed densities.



Departmental Input

Utilities Department

Goshen's utility services are presently shared by three departments.

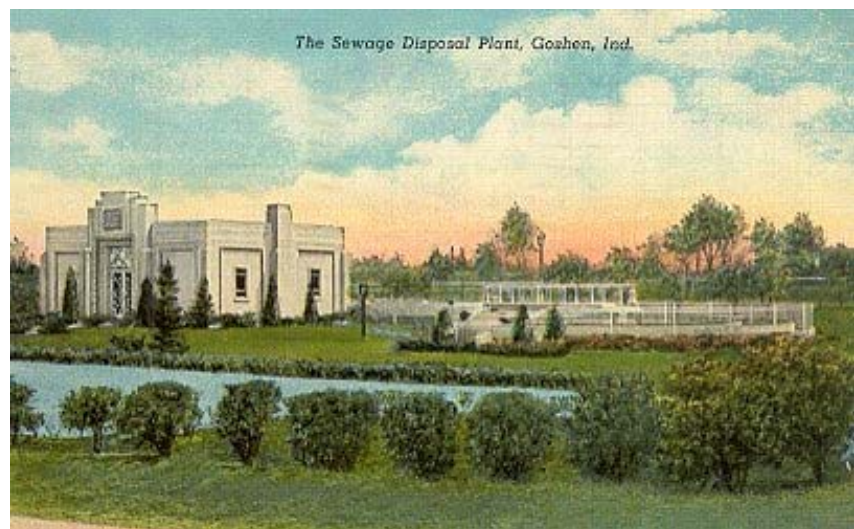
- The office handles billing and accounting for the department, administration, customer service, and meter reading.
- The water and sewer office maintains the city's water and sewer lines.
- The staff at the wastewater treatment plant maintains that facility.

The Utility Department is financially self-supporting and provides income to other City departments as well. All staff were satisfied with their working environment and communication within the department. All felt they are overextended and are concerned about cutting of benefits.

The water and sewer workers are frustrated by antiquated infrastructure and felt they spend too much time repairing breaks and not enough time on routine maintenance. They are hopeful that recent reorganization of priorities from extension of services to more emphasis on repairing and replacing neglected parts will provide better service. They are also hopeful that more emphasis on televising lines will allow them to catch issues before they become problems.

The wastewater treatment staff feel their responsibilities have few hurdles, though ongoing maintenance of electrical equipment is a challenge. They say the city is supportive of training, but there isn't always time or experience to perform all essential tasks without some outside assistance. They say the department has high employee longevity which indicates pride among the workers and good support from the City.

Staff are proud of a plant free of violations and exceeding State standards. They feel things are being done right though population growth forces the plant to levels requiring upgrade. Some equipment is obsolete. There is interest in replacing the present lagoon system of sludge storage with silo storage. Staff believe the City does a good job of monitoring industrial waste, a task simplified as some more problematic industries are no longer in the community. Plant monitoring would be improved by computerization.



Goshen's sewage treatment plant is probably one of very few ever featured on a postcard, printed shortly after the building's completion in 1938... which was within a year of another limestone landmark, the Goshen Police Booth.

Plannersweb.com says "Even something as mundane as a sewage disposal plant can be well-designed and attractive — as in Goshen, Indiana.

Goshen's plant is still in use as part of the local wastewater complex. According to Joseph Haufaire, Goshen City Planner and Zoning Administrator, 'Construction of the limestone building began in 1935 and was completed in 1938. We believe it to be the first wastewater treatment facility in Elkhart County. The structure was cleaned and resealed as part of the 1993 upgrade of the entire facility. It now is used for offices on the upper level, with equipment and pumps on the lower level.'

UTILITIES, ENERGY and WASTE IMPLEMENTATION STRATEGIES

proposed for the Goshen Comprehensive Plan 2004-2013

The implementation strategies identified earlier in this chapter are summarized here. Each strategy is listed under the numbered goal (U1, for instance) and is evaluated for the following features (column heads):

Funding – \$ symbols are used to indicate comparative values. A zero indicates that the strategy would fall under the responsibilities of existing City staff or is at least in part already incorporated into the budget of the lead agency. A single \$ symbol indicates that the strategy would probably cost less than \$10,000 and could be incorporated into operating budgets for lead agencies. A \$\$ symbol indicates the strategy might cost as much as \$50,000 (this includes new staff positions) but would probably be considered an operating budget item. \$\$\$ symbol indicates that the project might require capital expenditure and, in some cases (new water tower, water treatment facility upgrades) cost in excess of a million dollars. The symbols do not necessarily indicate that the City would be responsible for the costs. In many cases, state or federal funding or grant funding would be used to cover at least a portion of the expense. And as these are suggested initiatives to implement goals that may or may not be attainable, no commitment by the City or anyone else has been made toward this end, nor is one implied.

Lead Agency – This column identifies who in the community is or might be involved in providing leadership for implementing the strategy. In some cases, the lead agency is a city department. In some, City government would be the responsible party. In other cases, a community group or local agency might provide the lead for the strategy.

Partners – Listed in this column are potential partnerships that may facilitate the implementation of the strategy. The list is not designed to be all-inclusive nor is implementation dependent on the involvement of all organizations listed.

City Department – This column identifies the City department (or office) under which responsibility for the implementation strategy is most likely to fall.

New/Expanded Program – This column addresses whether the implementation strategy has been addressed in any form either at the City level or in the community. A strategy is listed as "new" if it shifts attention from existing strategies.

Ordinance Change – Each strategy is evaluated for whether it requires an ordinance change. In some cases (listed as "possibly,") ordinance requirements would be dependent on the direction that implementation takes or on the priority it receives.

Further Resources – This column refers to the need for informational resources. A strategy was listed as "no" if it was understood that all information necessary for implementation is presently available to the lead agency. The strategy is listed as "yes" if more information would be needed to implement the strategy.

Defined duration, or ongoing – A determination was made for how long it might take to implement the listed strategy. "Short" indicated that implementation could be initiated fairly immediately (within the next one to two years.) "Medium" indicated that the strategy could take from two to five years, based on a need for further information, lower priority, or hurdles to overcome in initiation. "Long" indicated that the strategy could take over five years to initiate. The terms did not indicate how long it would take to implement the strategy but were based on estimates for initiation. "Ongoing" is indicated when the strategy would continue over time once initiated.

P. 2 Implementation Strategy <i>(Full text is at beginning of this chapter.)</i>	Funds	Lead agency	Partners	City Dept (s)	New or expanded program?	Ordinance change?	Further resources?	Defined duration or ongoing
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U1. Match land uses with existing or potentially available utility services

1. Identify acceptable points of connection into existing system	0	Utilities	None	Utilities	Expanded	No	Yes	Medium
2. Determine where planned municipal growth can occur with the least negative impact on the utility system.	0	Utilities	City, County	Utilities, planning	Expanded	No	Yes	Short
3. Direct wastewater flow to underutilized portions of the existing system.	\$\$	Utilities	None	Utilities	Expanded	No	Yes	Medium
4. ...coordinate conservancy districts...	0	Utilities	City, County	Utilities, Planning	New	No	Yes	Medium
5. Redevelop infrastructure to support customers and „peripheral boundaries of the distribution and collection	\$\$\$	Utilities	City, County	Utilities, planning, engineering	Expanded	No	Yes	Long

U2. Encourage technology-advanced automation

1. Monitor the maintenance of the city's infrastructure.	\$	Utilities	City	Utilities, engineering	Expanded	No	Yes	Short, ongoing
2. Train employees to better understand their utility.	\$	Utilities	City	Utilities engineering, mayor	Expanded	No	Yes	Short
3. Document the infrastructure for entry into the GIS system.	\$	Utilities	City, grants	Utilities, engineering	New	No	Yes	Short

P. 3 Implementation Strategy <i>(Full text is at beginning of this chapter.)</i>	Funds	Lead agency	Partners	City Dept (s)	New or expanded program?	Ordinance change?	Further resources?	Defined duration or ongoing
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4. Include GIS coordinator in the development of forms for data entry.	0	Utilities	City, grants, Elkhart City, County	All	New	No	No	Medium
5. Institute a system of cross checks to verify recorded data	0	Utilities	City	Utilities, engineering	Expanded	No	Yes	Medium
6. Use GIS to document maintenance and progress.	0	Utilities	City, grants	All depts.	New	No	Yes	Medium

U3. Protect and enhance quality of ground and surface water

1. Increase daily flow capacity from 5 million to 7.5 million gallons.	\$\$\$	Utilities	City, consultants, engineers	Utilities	Expanded	No	No	Long
2. Increase first flush capacity from 12.5 to 21 million gallons.	\$\$\$	Utilities	City, consultants, engineers	Utilities	Expanded	No	No	long
3. Maintain or reduce number of plant bypasses.	\$\$\$	Utilities	City, consultants, engineers, State	Utilities	Expanded	No	No	Long
4. Begin engineering for upgrade (now)...	\$\$	Utilities	City, consultants, engineers	Utilities, engineering	Expanded	No	Yes	Short
5. Map, evaluate and upgrade wastewater infrastructure.	\$\$\$4	Utilities	City	Utilities, engineering	Expanded	No	Yes	Short, ongoing
6. Continue development of the Long Term Control Plan and amend as needed to meet state and federal standards.	0	Utilities	City, State, Fed govs	Utilities	Expanded	No	Yes	Short, ongoing

P. 4 Implementation Strategy <i>(Full text is at beginning of this chapter.)</i>	Funds	Lead agency	Partners	City Dept (s)	New or expanded program?	Ordinance change?	Further resources?	Defined duration or ongoing
7. Focus on sensitive areas (parks, river) for CSO remediation.	0	Utilities	City, State	Utilities	Expanded	No	No	Short
8. Continue a high level of environmental integrity in meeting standards for pre-treatment and effluent.	0	Utilities	City, State	Utilities	Expanded	No	No	Short
9. Work with County Environmental Health on the Wellhead Protection Program.	0	Utilities	City, County, State	Utilities	Expanded	No	No	Short
10. Incorporate solutions into WPP	0	Utilities	City, County, State	Utilities	Expanded	No	No	Short
11. Continue to address stormwater issues proactively and in combination with CSO	\$\$\$	Utilities	City, County, State	Utilities, Engineering	Expanded	No	Yes	Long

U4. Encourage technology-advanced automation								
1. Locate wellfields where they will complement land use planning objectives...	0	Utilities	City, County, consultants, engineers	Utilities, engineering, planning	Expanded	No	Yes	Long
2. Purchase land in sufficient advance to prevent water quality compromise ...	\$\$\$	Utilities	City, County	Utilities, mayor	Expanded	No	No	Medium
3. ... prioritize infrastructure improvements	0	Utilities	City, grants	Utilities, engineering, planning	New	No	Yes	Medium

P.5 Implementation Strategy <i>(Full text is at beginning of this chapter.)</i>	Funds	Lead agency	Partners	City Dept (s)	New or expanded program?	Ordinance change?	Further resources?	Defined duration or ongoing
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4. Ensure power generation at well sites as power backup source	\$	Utilities	County, City, Engineers, developers	Utilities	New	No	Yes	Ongoing
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No implementation for U-5/6 given

U7. Reduce solid waste								
1. ... encourage government to reduce volume and toxicity of waste they produce.	\$	Mayor	City, grants, State, Fed programs	Mayor, City depts	Expand-ed	No	Yes	Short
2. Policies and economic incentives to encourage reduction of consumer and business waste.	\$	Mayor	City, grants, State, Fed programs	Mayor, City depts	Expand-ed	No	Yes	Short
3. Educate... to ... purchase low-impact products and participate in source reduction programs.	\$	Mayor	City, State, Fed programs, developers, contractors, neighborhoods	All	New	No	Yes	Short
4. Encourage on-site business assistance programs ...	\$	Mayor	City, Fed programs, agencies, business community	All	New	No	Yes	Short
5. Salvage and reuse programs	--\$	Mayor	City, Fed programs, community groups, grants	All	New	No	Yes	Short
6. Backyard composting programs.	0	Mayor	City, community groups	All	New	No	Yes	Short

P. 6 Implementation Strategy <i>(Full text is at beginning of this chapter.)</i>	Funds	Lead agency	Partners	City Dept (s)	New or expanded program?	Ordinance change?	Further resources?	Defined duration or ongoing
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U8. Reduce solid waste								
1. Identify grant opportunities for sustainability promotion and education.	0	Mayor	Grants, community groups, City	All	New	No	Yes	Short
2. Seek tax incentives to reduce waste and pollution	0	Mayor	City, State Fed programs, community groups	All	New	Maybe	Yes	Short
3. Provide information on long-term economic, environmental and social impacts.	\$\$	Mayor	City, State Fed programs, community groups	All	New	No	Yes	Short
4. Facilitate waste-reduction, emissions reduction, water quality protection, air quality enhancement ...	--\$	Mayor	City, State Fed programs, community groups, grants	All	New	No	Yes	Short

No implementation for U-9 given