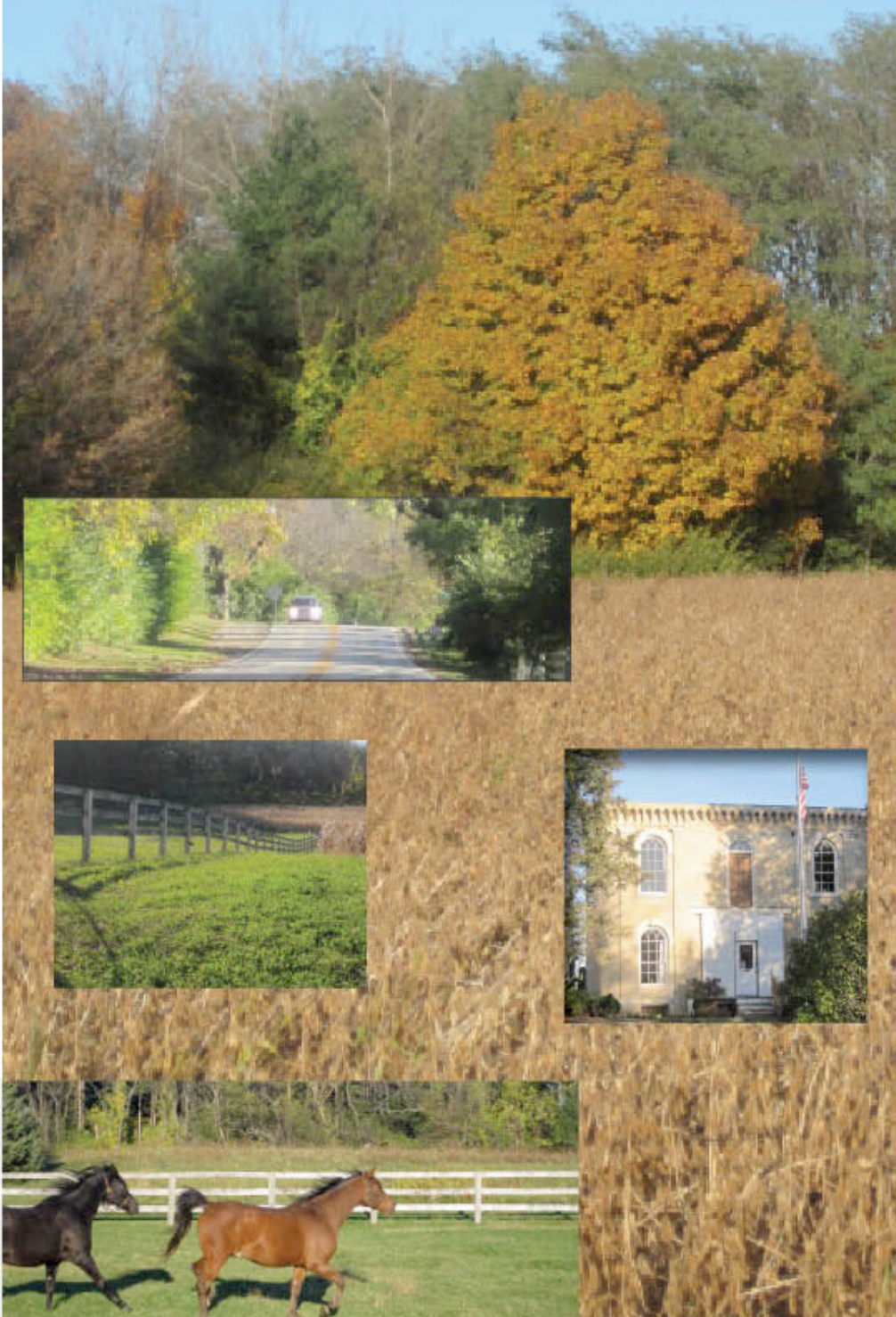


Addendum to the Bull Valley Comprehensive Land Use and Preservation Plan

December, 2011
version 1.04



Version Info

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Introduction

The information presented in this document, while important to the planning process, was deemed not to be part of the actual plan itself. Rather, it should be treated as supplemental data explaining the reasons for many of the decisions presented in the comprehensive plan.

ADDENDUM I: Conclusions from the Executive Summary and Report of Boone Creek Watershed Alliance Watershed Protection Plan

The entire document is over 70 pages long and deemed too big to include in it's entirety. Only the summary and conclusions of the protection plan are excerpted here. The document can be read in its entirety at the Bull Valley Village Hall.

Conclusions

The Boone Creek watershed is unique in many ways.

- The watershed's soils and glacially formed geology promote rapid infiltration of precipitation that effectively recharge local groundwater aquifers. This groundwater resource provides for a stable water supply and a steady source of base flow to sensitive fens, other wetlands, and the creek itself.

- Due to its groundwater sources, Boone Creek flows clear and cold much of the year. While some physical alterations have impaired its aquatic habitat, the creek supports several sensitive species of fish and other aquatic organisms.

- The watershed contains an unusual collection of Illinois Natural Area Inventory sites reflecting the presence of threatened and endangered plant and animal species and sensitive habitats. A number of Illinois Natural Area properties have been dedicated by their owners as Nature Preserves.

- The watershed contains probably the largest remaining complex of woodland/savanna landscape in all of McHenry County.

- The combination of these features make the watershed a highly valued place to live and recreate.

Expected suburban development in sensitive areas of the watershed and other human-induced impacts threaten these unique resources.

- Most of the watershed's shallow aquifers are highly sensitive to development impacts, such as road salt and septic system discharges.

- Disruption of aquifer functions could several impact groundwater-fed fens, the creek, and local water supplies.

- Natural areas and their flora and fauna are subject to continuing degradation due to the proliferation of invasive plant species.

Recommended Watershed Protection and Restoration Strategy

This chapter identifies recommended strategies for addressing the critical issues facing the Boone Creek watershed. These issues, which were initially identified by watershed stakeholders, are listed below in priority order.

- watershed coordination
- groundwater recharge and supply
- water quality
- fish and wildlife habitat
- open space and greenways
- flood mitigation

These strategies are based on the detailed assessment of both *existing* and *threatened* use impairments that were identified in Chapter 2 of this plan. While the recommended strategies are relatively thorough, they do not necessarily represent the full range of potential activities that can improve the watershed. More detailed (i.e., site specific) strategies should be identified by watershed stakeholders as part of a long-term watershed planning process.

Goal 1: Develop a Framework for Coordinated Watershed Planning, Land Use Planning, and Education

In addition to various natural resource and water quality concerns, stakeholders identified coordination, leadership, regulation, and grassroots planning as top watershed priorities. Objectives and actions addressing these priorities will enhance the implementation of the natural resource, water quality, and habitat restoration strategies identified in the following sections. Objectives and actions for watershed coordination fall into four categories:

- public and institutional coordination;
- watershed stewardship and leadership;

- watershed outreach and education; and
- watershed monitoring.

Objective 1: Improve public and institutional coordination and communication.

Recommendations

1. Woodstock, Bull Valley, McHenry, and the County (the "watershed communities") should implement institutional arrangements to ensure more integrated and sustainable land use planning among their jurisdictions.

2. Watershed communities should develop and implement a sustainable growth and development strategy, including an anti-degradation policy for groundwater, surface water quality, and other natural resources, consistent with identified resource protection objectives and the mapped resource protection areas in this plan.

3. Watershed communities should adopt integrated watershed-wide land development and management practices that conserve water resources and biodiversity.

4. Watershed communities should protect, acquire, and manage natural resource areas across political jurisdictions.

5. Local governments, state agencies, and private and non-profit organizations should work to improve coordination and communication among themselves and with watershed residents and landowners.

6. All watershed stakeholders should seek out opportunities for public/private partnerships to implement the watershed restoration strategy, to enhance funding opportunities, and to demonstrate the feasibility of such partnerships.

Objective 2: Encourage watershed leadership, stewardship, and volunteer activities.

Recommendations

1. The Boone Creek Watershed Alliance (BCWA) and watershed stakeholders should identify additional watershed leaders to assist in directing and coordinating activities.

2. The BCWA should solicit the long-term support of the McHenry County Stormwater Management Committee in funding and implementing the watershed plan for Boone Creek.

3. Watershed communities and stakeholders should consider the development of localized plans with more detailed strategies to address site specific conservation opportunities, problems, and conditions.

4. The BCWA, in cooperation with watershed communities, should reward watershed improvement efforts with recognition, awards, events, and publicity.

Objective 3: Educate the public and public officials about their impact and role in protecting watershed resources.

Recommendations

1. The BCWA and stakeholders should develop and distribute resident information brochures promoting watershed appreciation and involvement.

2. Resource agencies that are stakeholders in the watershed should provide technical assistance to local governments, homeowners associations, and community groups.

3. The BCWA should develop public relations strategies to educate, involve, and invigorate the public and community leaders, including watershed awareness events and the use of the media.

4. The BCWA and watershed communities should encourage natural landscaping practices throughout the watershed and educate landowners about stewardship opportunities for natural lands.

5. Watershed communities and the BCWA should utilize demonstration projects to promote and educate the public, local officials, and developers.

6. The BCWA and watershed resource agencies should develop a watershed training program for teachers and that involves at least one training session and/or natural area tour annually.

7. The BCWA should encourage school group and citizen participation in stream monitoring, clean-up, and management efforts.

Objective 4: Increase the frequency and quality of watershed monitoring.

1. Watershed stakeholders and resource agencies should develop short and long term watershed monitoring strategies (*and a standard list of indicators?*).

2. McHenry County, with the assistance of relevant resource agencies, should work to expand the monitoring of aquifers, both water levels and water quality.

3. The BCWA should seek to involve the public and schools in monitoring efforts and opportunities.

Goal 2: Protect Groundwater Recharge Functions and Groundwater Supplies

More so than most watersheds in this region, the watershed assessment for Boone Creek has shown that the creek and the special occurrence of fens and groundwater-dependent wetlands in this watershed are critically dependent on preserving a dependable, clean source of groundwater flow. The following objectives and recommendations are directed to preserving both the quantity and quality of existing groundwater flows.

Objective 1: Preserve natural recharge functions to maintain clean groundwater to provide both for sustainable drinking water supplies and a consistent natural source of baseflow for Boone Creek and the unique fens and wetland features in the watershed.

Recommendations

1. McHenry County, with the assistance of the Illinois State Water and Geological Surveys and other relevant resource agencies, and in the context of the ongoing countywide groundwater planning assessment, should assess the potential effects of development activities on the quantity and quality of groundwater recharge. This assessment should focus, in particular, on recharge areas identified as sensitive to contamination and those up-gradient of fens and natural areas.

2. Watershed communities should develop and enforce land use, zoning, and subdivision codes that minimize interruptions of natural recharge functions associated with new impervious surfaces, soil compaction, and grading.

3. Watershed communities should require development designs that maximize the filtering and infiltration of stormwater runoff through

practices such as permeable paving, filter strips, swales, infiltration trenches, and natural landscaping. (See related recommendations under Water Quality.)

4. Watershed communities, in cooperation with the McHenry County Stormwater Management Committee, should develop and enforce subdivision and stormwater regulations that protect the storage and recharge functions of depressional storage areas, including kettle holes, farmed wetlands and depressions, and jurisdictional wetlands;

5. The McHenry County Health Department, municipalities, and the county should develop measures to protect groundwater quality from the adverse effects of septic systems (including nutrients, household chemicals, and water softener salts), road salt, and lawn chemicals. (See more detailed recommendations under Water Quality.)

Objective 2: Protect aquifer levels to preserve sustainable, cost-effective groundwater supplies.

Recommendations

1. The County, with the assistance of the Illinois State Water and Geological Surveys, and in the context of the ongoing countywide groundwater planning assessment, should assess the potential long-term effects of aquifer draw-down that could result from shallow residential wells, golf course and other irrigation wells, and the impacts from existing and proposed gravel pit operations.

2. The County and the Surveys also should evaluate the feasibility, based on cost and water quality, of withdrawals from deep aquifers.

3. Watershed communities should develop appropriate land use controls and should investigate groundwater withdrawal regulations to avoid adverse impacts to existing aquifer levels.

4. Watershed communities should adopt and implement water conservation measures to ensure that the sustainable yield of the aquifers is not exceeded.

Goal 3: Protect and Enhance Water Quality and Stream Uses, with a Target of Achieving an Index of Biotic Integrity (IBI) Score of at Least 45 throughout the Stream

Protection of water quality is critical for both groundwater and surface flows. While groundwater quality was previously addressed, the bulk of the relevant surface water quality recommendations appear in this section. It should be noted that achieving IBI score of 45 or higher is an ambitious but achievable goal. This score, based on a scale of 12 to 60, is reflective of a high quality aquatic community. This goal is based on observed conditions in the creek and is consistent with goals seen in other high quality watersheds in the region. But it likely will require habitat restoration in parts of the creek (previously addressed) as well as very aggressive watershed protection measures in the face of new development.

Recommended actions that address water quality concerns can be categorized as follows:

- mitigation of nonpoint source impacts due to urban and agricultural development; and
- reduction of point source pollution from septic systems and potential wastewater treatment facilities.

Objective 1: Reduce nonpoint source pollution due to runoff from urban, developing, and agricultural landscapes.

Recommendations

Local ordinances

1. Watershed communities should expeditiously adopt and implement the McHenry County *Watershed Development Ordinance*. *(The McHenry County WDO has been released in draft for public review. An interagency review process concluded that the draft WDO has some commendable strengths in addressing nonpoint source pollution, but needs to be strengthened in several key areas. These recommended improvements, which are underlined below, are recommended for inclusion in the ordinances of all communities in the Boone Creek watershed.)*

2. Watershed communities should adopt and enforce local zoning and subdivision regulations that require environmentally friendly stormwater designs and that minimize impervious surface area and soil compaction during and following construction.

3. Municipal and county ordinances should include as a purpose statement the "reduction of runoff pollution to the maximum extent practical, consistent with pending NPDES Phase 2 stormwater permit requirement."

4. Watershed communities should provide flexibility in their ordinances to allow non-traditional site designs that maximize stormwater infiltration and filtering, as identified below.

5. Watershed communities, as part of the development approval process, should require fees from developers to support a coordinated water quality monitoring program to track the short- and long-term impacts of development.

Natural Drainage and Infiltration

5. Local government development ordinances and guidelines should be updated to incorporate the following:

- encourage site designs that reduce and disconnect impervious area by utilizing alternative parking lot designs, reduced street widths, reduced building-to-street setbacks, and clustered residential development.

- require greater utilization of natural drainage measures such as swales and vegetated filter strips to reduce runoff volumes, to filter pollutants from runoff water, and to improve infiltration of stormwater into the ground.

- require, where feasible, utilization of natural infiltration practices, such as infiltration trenches and basins and rain gardens, to encourage stormwater to seep into the ground rather than flow over the surface of the ground.

- encourage use of permeable paving blocks for low traffic parking areas, emergency access roads, and driveways to increase infiltration and reduce runoff volumes and pollutant loads.

- require utilization, where feasible, of deep-rooted native vegetation instead of turf grass and ornamental plants to increase stormwater infiltration, reduce the need for pesticides and fertilizers, filter pollutants from runoff, and provide habitat for native species.

- require utilize native vegetation buffers along all water bodies to filter out damaging pollutants, to allow natural streamflow, and to protect

stream banks from erosion. Development within buffer areas should be strictly limited. Long-term management responsibilities, such as thorough conservation easements, should be clearly established for buffer areas to ensure adequate protection.

6. Local governments and landowners should work cooperatively to maintain, restore, and enhance natural drainage and storage systems that can serve multiple objectives such as stormwater conveyance, storage, and habitat.

Stormwater Detention

7. Local government development ordinances should incorporate the following provisions:

- utilization of wet bottom or wetland detention basin designs for new development and retrofit existing detention basins to reduce pollutant loads, and to provide habitat and passive recreation opportunities.

- restriction of discharge rates from detention basins to mimic natural instream flow rates.

- requirements for long-term maintenance of stormwater detention facilities to ensure effective operation and provide maximum detention and habitat.

8. Local governments should routinely inspect and monitor detention facilities in their jurisdictions.

Soil Erosion and Sediment Control

9. Local governments should implement and enforce soil erosion and sediment control requirements to:

- minimize exposed soil, minimize mass grading, stabilize exposed and disturbed soils as soon as possible, and filter and trap sediments out of stormwater before it leaves a development site.

- require avoidance and/or minimization of construction in sensitive areas such as steep slopes, stream corridors, shorelines, wetlands, woodlands, natural areas, and unique habitats.

- require temporary and/or permanent stormwater conveyance channels, including ditches, swales, and diversions to withstand the expected flow velocity from the 10-year frequency storm without erosion

- require regular maintenance by site contractors.

10. Local governments should perform routine inspections of construction sites and implement penalties for non-conformance.

11. NRCS and SWCD should educate and assist owners of pastures to implement effective buffer strips to minimize polluted runoff. Pastures should be discouraged on steep slopes, in drainageways, or adjacent to sensitive wetlands and waterways.

12. Agricultural landowners, with the assistance of NRCS and the SWCD, should implement soil conservation techniques, such as windbreaks, vegetated swales, terraces, natural buffers (filter strips), and conservation tillage practices and crop residues to reduce erosion and to filter pollutant runoff from agricultural landscapes.

Land Management and Maintenance Practices

12. Watershed communities should improve road maintenance practices to remove potential pollutants, such as through regular street sweeping, and reduce the use of road salt in winter.

13. McHenry County should monitor and ensure effective maintenance of borrow pits and sludge disposal and application sites to prevent leakage and contamination of ground and surface water.

14. The BCWA and watershed communities should encourage landowners and business owners to utilize sustainable lawn care practices, to reduce or eliminate phosphorus use in fertilizer and detergents, and to properly use and dispose of household chemicals and wastes.

15. The NRCS and SWCD should encourage reduced use of pesticides and fertilizers on agricultural lands.

Objective 2: Reduce point source pollution from septic systems and any future wastewater treatment facilities.

Recommendations

1. The McHenry County Health Department (MCHD) should work with watershed communities to ensure regular inspection and monitoring of septic systems to prevent contamination of ground and surface water. Monitor both pollutants that may impair aquatic system health (e.g., nutrients and salt) as well as pollutants that threaten public health.

2. The MCHD should require regular maintenance of septic systems by property owners.

3. The MCHD should work with municipalities and the county to identify measures to remediate or replace problem septic systems.

4. The McHenry County Health Department, resource agencies, and watershed communities should evaluate existing septic system siting and design standards to determine their effectiveness 1) in preventing pollution of aquatic systems and 2) preventing groundwater/drinking water contamination in highly permeable soils, such as found in the kettle hole area of the watershed.

5. Watershed communities should implement programs to detect and eliminate any illicit sanitary/industrial/commercial connections to storm sewers, consistent with the requirements of the NPDES Phase 2 stormwater permit program.

6. Sewered communities should evaluate and reduce infiltration/inflow to sanitary sewers to minimize overflows and bypasses.

7. Local governments, in cooperation with NIPC and the Illinois EPA, should:

- avoid any new or expanded direct discharges of treated wastewater to Boone Creek by utilizing existing regional treatment facilities.

- where new or expanded discharges can not be avoided, use facility designs that ensure discharge of high-quality effluent that will not disrupt aquatic life and require attainment of water quality levels that exceed established standards, especially for nutrients.

- utilize alternative wastewater treatment/disposal methods such as constructed wetlands, land treatment, and wastewater reuse.

Goal 4: Protect and Improve Fish and Wildlife Habitat

The protection and improvement of fish and wildlife habitat is partially dependent on previous recommendations directed to preserving consistent groundwater flows and protecting surface and groundwater quality. Additional recommendations are presented in this section to address the *physical* habitat needs of the creek, wetlands, and upland ecosystems

Objective: Protect and restore terrestrial and aquatic habitat quality and quantity within the watershed, including natural hydrology. (Some related recommendations for aquatic habitat protection are covered in the Water Quality objectives.)

Recommendations

Planning and Development

1. Bull Valley, McHenry, Woodstock, the County, and the townships should designate in their comprehensive land use plans the habitat and resource protection areas identified in the watershed plan.

These areas should be designated as conservation areas and the communities should coordinate preservation programs with neighboring communities.

2. Watershed communities should identify specific mechanisms for protection of designated resource conservation areas, including zoning overlay districts, public acquisition, conservation easements, developer donations, and conservation development designs (e.g., cluster development).

3. Watershed communities should adopt and enforce ordinances and programs that protect natural areas from new development and land disturbance activities, such as clearing, compaction, draining, filling, dredging, straightening, and hydrologic modification. This should include zoning regulations (e.g., overlay districts), subdivision regulations, conservation development techniques, and natural buffers, in addition to acquisition efforts. *(Many of these protections, particularly for stream corridors and wetlands, are contained in the draft McHenry County WDO, and additional recommendations are underlined below.)*

4. Watershed stakeholders should adopt and implement appropriate recommendations of Chicago Wilderness' *Biodiversity Recovery Plan* throughout the watershed.

5. Local governments and the McHenry County Stormwater Management Committee should require mitigation of all unavoidable disturbances of natural areas.

Natural Area Protection, Management, and Restoration

6. Watershed resources agencies, local governments, the MCCD, and other stakeholders should:

- identify, protect, expand, and enhance high quality habitat sites, including Illinois Natural Areas Inventory sites, using acquisition, conservation easements, developer donations, and other appropriate techniques.

- identify and protect large habitat patches and connecting greenways, especially along the creek corridor and other water features.

- provide corridors of passage throughout and between habitat areas and remove barriers to wildlife movement, such as highways, dams, and weirs.

7. The McHenry County Conservation District, the BCWA, other land trusts, and other public agencies such as park districts should work to expand protected land holdings.

8. Public and private owners of natural lands should:

- restore ecosystems that have been highly degraded, including those that are unique, threatened, or endangered, and those that support threatened and endangered species, paying special attention to opportunities for restoring wetland, woodland, savanna, and prairie ecosystems.

- actively manage natural areas and riparian zones by controlling non-native and invasive plant species, planting native vegetation, performing regular prescribed burns, and avoiding the use of environmentally damaging pesticides (e.g., certain mosquito control practices).

- protect and utilize upland natural areas to preserve and restore natural hydrology wherever possible.

9. The BCWA and watershed resource agencies should educate and assist private landowners in enhancing habitat through the use of natural landscaping (in lieu of lawn), implementation of the management approaches described above, and the identification of potential funding sources.

Stream Corridor Restoration

10. The BCWA, in cooperation with private landowners, local governments, and the McHenry County Conservation District should identify and obtain funding to implement stream restoration projects to address degraded conditions identified in the stream corridor assessment. Restoration efforts should focus in particular on stream bank stabilization, riparian zone habitat restoration, dam removal, and channel re-meandering.

Aquatic Habitat Protection

11. Local governments, in cooperation with the Chicago District, U.S. Army Corps of Engineers, should implement and enforce stream and wetland protection requirements at least as protective as the draft McHenry County WDO, including the following provisions: *(The McHenry County WDO has some commendable strengths in addressing stream and wetland protection, but could be improved in a couple of key areas. These improvements, which are underlined below, are recommended for inclusion in the ordinances of all communities in the Boone Creek watershed.)*

- protect minimum setbacks and buffers for all wetlands, drainageways, and stream channels, consistent, at a minimum, with the requirements of the draft McHenry County WDO.

- for unavoidable disturbances of wetlands and aquatic systems, require mitigation to occur within the Boone Creek watershed (e.g., through stipulations in annexation agreements).

- avoid development in areas containing drained hydric soils.

- minimize channel modifications such as straightening and dredging, and restore stream channels, stream beds, and aquatic habitats that have been modified or degraded to natural conditions. This includes instream habitat features such as natural meanders and pool-riffle sequencing.

- protect riparian vegetation and stabilize streambanks using environmentally-friendly bioengineering techniques such as native vegetation, A-Jacks, lunkers, fiber rolls, geotextile mats, etc. Avoid the use of artificial materials such as concrete, gabions, and construction rubble.

12. Watershed communities, the McHenry County Conservation District, the BCWA, and other public and private organizations should acquire, protect,

restore, and/or construct wetlands and wetland hydrology within the watershed to provide habitat, flood water detention capacity, and water cleansing.

In particular, identify and implement measures such as removal of dams, ditches, and drainage tiles, where feasible.

- Watershed resource agencies should provide technical and financial assistance to landowners in the floodplain and along water bodies to help protect riparian resources.

Goal 5: Protect Open Space and Greenways and Enhance Access and Recreational Opportunities

The Boone Creek watershed has remarkable open space and natural resource features. The recommendations in this section address the potential for improved protection, access, and recreational usage of these unique resources.

Objective: Increase and enhance public and private open space and recreational opportunities throughout the watershed.

Recommendations

1. The BCWA, in cooperation with watershed resource agencies and land trusts, should create and adopt a watershed open space plan to assist watershed communities in prioritizing and implementing open space and natural resource protection programs.

2. Watershed communities and the McHenry County Conservation District should utilize the strategies of the *Northeastern Illinois Regional Greenways Plan*, developed by NIPC and Openlands Project, as a guide for greenway and trail designation, coordination, and development.

3. The BCWA and local open space organizations should educate the local community and seek public input on open space opportunities and priorities.

4. The BCWA and watershed resource agencies should identify opportunities for access and recreation, such as stream corridor buffers and utility and private easements.

5. Watershed communities and the McHenry County Conservation District should develop appropriate facilities for improved parking and access to

these resources, hiking trails, interpretive signage, trailhead facilities, and comfort stations.

6. All watershed stakeholders should promote natural resource-based recreational activities, including fishing, hiking, and wildlife observation and photography. Evaluate the feasibility of non-motorized boating opportunities in lower stream reaches near the Fox River.

7. Watershed communities and open space entities should enhance and promote trails, trail access, and alternative transportation networks by connecting mainstem trails to residential areas, trails along tributaries, and protected natural areas.

8. Local governments and township and county highway departments should designate appropriate local roadways as bicycle routes and/or scenic drives.

Goal 6: Prevent and Mitigate Flood Damages

Previous sections have addressed related objectives such as maintaining natural groundwater recharge processes and controlling nonpoint source pollution in surface waters. While the preceding best management practice (BMP) recommendations should limit increases in stormwater quantities, additional recommendations are provided here to prevent and mitigate flood damages.

Objective 1: Prevent increases in flooding and flood damages in the watershed. (Additional recommendations for stormwater drainage and detention are identified previously under Water Quality.)

Recommendations

1. Local governments should implement and enforce effective flood prevention requirements, at least as protective as the draft McHenry County WDO, including those below. These requirements should be addressed in appropriate zoning and subdivision regulations and building codes. (*The McHenry County*

WDO has some commendable strengths in addressing floodplain management, but could be improved in some key areas. These recommended improvements, which are underlined below, are recommended for inclusion in the ordinances of all communities in the Boone Creek watershed.)

- discourage new building and roadway development within the floodplain.

- in the floodway, in addition to the prohibitions contained in the McHenry County WDO, the following uses should be prohibited: expanded wastewater treatment facilities; detention basins; parking lots; unnecessary regrading of the floodway to "improve" drainage; the replacement, repair, or reconstruction of substantially damaged structures (damages exceeding 50% of the market value of the structure prior to damage); and improvements to existing buildings located in the floodway that would increase the enclosed floor area below the base flood elevation.

- reduce stormwater runoff rates and volumes by minimizing impervious surfaces, increasing infiltration, and using naturalized detention basins, as required in the McHenry County WDO and recommended above.

2. Watershed communities should protect and, where feasible, acquire the floodplain for flood prevention, open space, and environmental enhancement along the mainstem and tributaries.

3. Watershed communities, with the assistance of the McHenry County Stormwater Management Committee, should evaluate the accuracy of existing (1983) regulatory floodplain mapping for Boone Creek and pursue an update of the maps, if warranted.

Objective 2: Reduce existing flood damages in the watershed.

Recommendations

1. Watershed communities, in cooperation with the McHenry County Stormwater Management Committee, should develop a comprehensive flood hazard mitigation plan for the watershed.

2. Watershed communities, in cooperation with the Federal Emergency Management Agency and IDNR Office of Water Resources, should assess repetitively damaged structures and remove, relocate, elevate, or floodproof damaged structures, where feasible.

3. Highway departments and local governments should evaluate opportunities to raise the height of bridges and roadways that are routinely overtopped or damaged during floods.

4. Watershed communities, in cooperation with landowners, should develop and implement a program for routine channel inspection and maintenance. The purposes of this program are to maintain stream channel conveyance capacity and reduce channel erosion caused by obstructions.

5. Watershed communities and public land owners should identify and implement opportunities to restore degraded and drained wetlands throughout the watershed to enhance stormwater storage benefits.

Implementation Strategy

In addition to identifying the actions necessary to achieve watershed improvements, implementation of this Watershed Restoration Action Strategy ultimately will require more detailed information as to how and when recommended actions should be implemented to achieve the stated objectives. This process also should include a prioritization of recommendations by importance and/or urgency. This process should lead to a "watershed action plan" that will serve as the road map for implementation and should be reviewed and updated over time.

ADDENDUM II: Research on Current Housing

Current Housing Profile

The majority of the households in Bull Valley, 87%, were built after World War II (1950 and beyond). The condition of the housing stock is sound with the median age being 26 years.

Table 1) Household Age, 2000 data¹

Decade Built	Age of House (years)	Number of Houses
2000 to 2007 ²	2 to 8	51
1990 to 1999	15 - 19	46
1980 to 1989	20 - 29	30
1970 to 1979	30 - 39	100
1960 to 1969	40 - 49	24
1950 to 1959	50 - 59	39
1940 to 1949	60 - 69	6
1939 or earlier	70+	31
Median Age	26	
Median Year Built	1974	

The housing stock consists entirely of single family houses situated on large lots. With a median home value of \$594K, The price of a house in Bull Valley is considerably higher than that in surrounding McHenry County, where the median price is \$223K. This is due in large part to the larger estate zoning of Bull valley compared to that of McHenry County. With a housing density of just 50 households/sq mile, Bull valley is considerably less dense than the 699 households/sq mile of surrounding McHenry County. Bull Valley also has no downtown area with its corresponding usually higher household

¹ Source: US Census Bureau, <http://censtats.census.gov/data/IL/1601709531.pdf>

² Estimated from Building permit data: <http://www.city-data.com/city/Bull-Valley-Illinois.html>

density. This high cost of housing means that few housing units are affordable under Illinois law.

Table 2) Estimated Home Value, 2007¹

House Price	Number of Houses (owner occupied)
\$100,000 to \$199,999	2
\$200,000 to \$299,999	7
\$300,000 to \$399,999	30
\$400,000 to \$499,999	54
\$500,000 to \$749,999	109
\$750,000 to \$999,999	33
\$1,000,000 or more	58
Mean Value	\$747,302
Median Value, Bull Valley	\$594,814
Median Value, McHenry County	\$223,427

As of 2007 there were only 5 rental properties in Bull valley with a median rent of \$1863 per month.

Table 3) Rent Paid By Renters, 2007¹

Monthly Rent	Number of Rentals
\$1,000 to \$1,249	0
\$1,250 to \$1,499	2
\$1,500 to \$1,999	1
\$2,000 or more	2

¹ Source: <http://www.city-data.com/city/Bull-Valley-Illinois.html>

No cash rent	2
Median Rent	\$1,863

There is currently no subsidized housing in Bull Valley.

Affordable Housing

In 2004 the Illinois legislature passed the Illinois Affordable Housing Planning and Appeal Act. This law is intended to encourage communities to provide affordable housing and requires communities without sufficient affordable housing to adopt an affordable housing plan. Not all communities are affected. Those with less than 1000 residents and those that already meet affordable housing requirements are exempt

Up to this time, Bull Valley has been exempt from enforcement of this act due to the fact that its population is less than 1000. However, the 2010 Census reports that Bull Valley has grown from 726 in the year 2000 to 1077 in 2010, and has become subject to this law

The Affordable Housing Plan

The IHDA¹, Illinois Housing Development Authority, administers the law and provides assistance to communities, developers, and buyers wishing to pursue affordable housing.

Here is a quote from the IHDA²:

“Each municipality or county which has been determined to have less than 10% of its total year round housing stock deemed as affordable must develop and approve an affordable housing plan, consisting of at least the following:

- A statement of the total number of affordable housing units that are necessary to exempt the local government from the operation of this Act, as defined in Section 15 and Section 20;

¹ <http://www.ihda.org/>

² Source: Planning Act Procedures,
<http://www.ihda.org/admin//Upload/Files//62f1b031-eb6e-4282-8390-3df108fc2271.pdf>

- An identification of lands within the jurisdiction that are most appropriate for the construction of affordable housing and of existing structures most appropriate for conversion to, or rehabilitation for, affordable housing, including a consideration of lands and structures of developers who have expressed a commitment to provide affordable housing and lands and structures that are publicly or semi-publicly owned;
- Incentives that local governments may provide for the purpose of attracting affordable housing to their jurisdiction; and
- A goal of: a minimum of 15% of all new development or redevelopment within the local government that would be defined as affordable housing in this Act; or a minimum of a 3 percentage point increase in the overall percentage of affordable housing within its jurisdiction, as defined in Section 20 of this Act; or a minimum of a total of 10% of affordable housing within its jurisdiction.”

Affordable housing is defined as housing that costs no more than 30% of a households' income. Owner occupied buildings must be affordable by household incomes of 80% of the areas' median household income. Rental housing must be affordable with a household income of 60% of the mean area household income.

The Illinois Housing Development Authority is the organization overseeing the application of the IAHPAA. Using 2004 data, in McHenry County, an affordable house costs \$123,720¹. Affordable rental housing rents at \$775 per month. This estimate is based on many variables such as mortgage interest rates and tax rates which have surely changed since the year 2004, the date of the last affordable housing report. A new estimate for the price of affordable housing/rental will be published after the 2010 census.

According to the previous section, there are no affordable houses or rental properties currently in Bull Valley.

¹ Source: Report on Affordable Housing Planning and Appeal Act, <http://www.ihda.org/admin//Upload/Files//d26576d7-a23b-4aeb-a23c-5bf579cb143d.pdf>

(Note: There have been yearly updates to the cost data, all the way to 2009, but they detail only Chicago Metropolitan Area housing costs. It's unclear if McHenry County is considered part of the Chicago metro area. The 2004 data suggests that it isn't.)

Making Housing Affordable

The Village should take steps to meet the need for affordable housing by:

A. Requiring new development to include a predetermined number of smaller lots intermixed with the larger lots required by the village plan area. Small lot residences are the ideal way to integrate affordable housing within the main body of the community. However, they should be subject to several restrictions:

- No small lot parcel can abut another small lot parcel.
- No normal sized parcel can abut more than 1 small lot parcel.
- Small lot parcels are not allowed in the village core.
- Developer must issue a commitment that these residences are to be affordable.

No more than 15% of a housing development can be small lot parcels.

The object is to blend these small lot residences into their neighborhoods without isolating their owners from the general community.

B. Permitting development of a limited amount of lower cost housing such as apartments and condominiums alone or as a mixed use with retail development. Consideration should also be given to Pocket Neighborhoods with mixed uses. Mixed-use development can be structured on a building basis, as with ground floor retail with residential units above, or on a neighborhood scale through a mix of residential, retail/commercial buildings in close proximity to one another. This gives residents the opportunity to use their automobiles less frequently by making it possible to walk to shops and other services. This independence may be particularly attractive to seniors who wish to maintain an independent lifestyle when they are no longer able or interested in driving.

The Aging Population and the Need for Affordable Housing

Between the years 1945 and 1964, The United States experienced the greatest population increase in its history. One impact this "Baby Boom" generation has had is on housing. Beginning in the 70's the Baby Boom generation reached their 20s and began looking for housing for their new families. Housing costs skyrocketed and continued to do so until just recently, when the last of the BB generation reached their 40s and have settled down.

The boomer generation has driven the trend to ever larger and more expensive houses, until now. The first of the boomer generation is now reaching age 65, retirement age. The number of people over age 65 is expected to more than double between now and 2030¹. Projections are that between 2010 and 2030, the general population will rise by 18% but the number of people over age 65 will rise by 78%. One in 5 people will be over age 65 by the year 2030. The emerging trend is to downsizing housing.

Table 4) Number of People Aged 65 or Older in the US¹

Year	65 & older (millions)
2000	35.0
2010	40.2
2020	54.6
2030	71.5
2040	80.0
2050	86.7

As the population ages and the kids move away, the empty nest is too big, too costly and too physically difficult to maintain. The baby boom generation will be selling their houses in greater and greater numbers over the next 10 years and looking to buy smaller, more easily maintained houses. Statistics show that 47%² of these people move to within the same county they

¹ Source: Document P23-209, 65+ in the United States: 2005, US Census Bureau.

² Source: Document P23-209, 65+ in the United States: 2005, US Census Bureau.

once lived. They want to stay in the area but will be forced out and will move elsewhere if there is no smaller, elderly friendly housing available. Probably, the two major expenses faced by retirees are housing maintenance expenses and property taxes.

Smaller, maintenance free, low cost housing must be built to meet these needs in the coming decade. People who have lived in the Village and wish to stay in the Village should have that option available to them.

Energy Efficient Housing

In 2009, Illinois passed into law the Energy Efficient Building Act of 2009, Chapter 20, ILCS, Act 3125. It mandates minimum construction practices for new or remodeled buildings to reduce energy consumption. By adhering to the 2009 IECC, International Energy Conservation Code, property owners can reduce air pollution, moderate energy demand and stabilize energy costs and electric, oil, and gas supplies.

This law supersedes local energy efficiency ordinances by mandating that local codes can be neither more lax nor more restrictive than the 2009 IECC. It applies to all Illinois communities, but enforcement need not be done by those communities which do not already have energy efficiency ordinances.

The village building inspector should become knowledgeable of IECC requirements as this will be required of all construction going forward.

The village should consider adopting its own energy efficiency ordinance, specifying support for the Illinois Energy Efficient Building Act, to give itself enforcement capabilities.

ADDENDUM III: Research on Non-Motorized Transportation

Bicycles

Bull Valley, with its varied terrain and rural scenic vistas attracts bicyclists from all over northeast Illinois. The McHenry County Bike Club regularly holds group rides that traverse the village. Thus, there are large numbers of cyclists vying for the same roads as automobiles, especially on weekend mornings when it's a common sight to see large groups of cyclists on the road. These cyclists often ride 2 abreast, blocking and backing up traffic.

Illinois law states:

Sec. 11-1505.1. - Persons riding bicycles or motorized pedal cycles upon a roadway shall not ride more than 2 abreast, except on paths or parts of roadways set aside for their exclusive use. Persons riding 2 abreast shall not impede the normal and reasonable movement of traffic and, on a laned roadway, shall ride within a single lane subject to the provisions of Section 11-1505.

Thus riding 2 abreast violates the law and creates animosity toward cyclists. In fact, in the 2009 village opinion survey, bicycles was ranked 6th of things people wanted changed in Bull Valley.

In addition, bicycle etiquette says that large groups of riders should ride single file and break into smaller groups of 2 or 3 bikes when riding on a roadway. This way, a car, when passing need only pass 2 or 3 bikes at a time before merging back into its normal traffic lane. This practice is very rarely seen and a car, in order to pass, must pass all cyclists at once, again slowing traffic.

It's easy to just restrict bicycle usage on village roads, but that's not the right approach to the problem. There are two reasons why bicycling should be encouraged and made as safe as possible

- To promote a "green" environment and lessen dependence on automobiles.
- Per the findings of The White House Task force on Childhood Obesity, Bull Valley should be promoting healthy lifestyle choices:

"Research is still emerging on the exact interaction of the built environment and the impact on childhood obesity. Yet, a series of research

studies suggests that attributes of our current built environment, such as low density development and sprawl, have had a negative impact on health outcomes, contributing to obesity and related health problems. Several of these studies have found that areas with greater sprawl tend to have higher rates of adult obesity. The combination of greater distances between destinations as development sprawls outward from city centers and the lack of pedestrian and bicycle infrastructure contributes to eliminating walking and biking as options and to increased driving.”¹

The very nature of Bull Valley’s zoning, estates in isolated, non-connected subdivisions, does little to provide a safe biking environment with the level of automobile traffic on the roads. Much can be done to improve bicycle safety and encourage bicycling within the village.

Bicyclist Skill Levels

Bicyclists are commonly divided into three groups of varying abilities.

A - Advanced. Experienced riders who use their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to routes with minimum detour and delay. They are comfortable riding in traffic; however, they require sufficient operating space to eliminate the need for either themselves or a passing vehicle to shift position.

B - Basic. Less confident adult riders who may also use their bikes for transportation purposes, i.e., to get to a store or visit friends but are less comfortable in high speed traffic and on busy roads. Thus, they prefer neighborhood roads and dedicated bike facilities such as bike paths or marked on-street bike routes.

C - Children. While not as fast or competent as their parents, they may still require access to destinations such as shopping, recreational areas, and schools. Residential streets with low motor vehicle speeds, shared-use bike/hike paths and busier streets with well-defined pavement markings between bicycles and motor vehicles can accommodate children without encouraging them to ride in the travel lane of major arterials.

¹ Solving the Problem of Childhood Obesity within a Generation, White House Taskforce on Childhood Obesity, Report to the President, May 2010, http://www.letsmove.gov/taskforce_childhoodobesityrpt.html

Current Conditions: Bicycle Level of Service

There is a nationally used measure of bicyclist comfort level on a roadway based upon traffic levels and roadway geometry. Called the BLOS, Bicycle Level of Service, it gives a score of A - F according to the following table

Table 5) BLOS Rankings

Ranking	Description
A	Children, Beginners, & Advanced riders are all comfortable on the road
B	Children should avoid the road Beginners are comfortable on the road. Advanced riders are comfortable on the road
C	Children should avoid the road. Beginners start becoming uncomfortable on the road. Advanced riders are comfortable on the road.
D	Children should avoid the road. Beginners should avoid the road. Advanced riders are comfortable and know how to ride with traffic.
E	Children should avoid the road. Beginners should avoid the road. Advanced riders begin to get uncomfortable on the road.
F	Extremely bad road for everyone, and should be avoided.

Using an on-line calculator, all of the village's main roads are rated C, D, or E for bicycle rider comfort. Less traveled roads such as Cherry Valley are rated C. Heavily traveled roads such as Country Club or Bull Valley roads are rated E. Unfortunately, the heavily traveled roads are where the bicyclists want to be because they lead to destinations that cyclists are headed toward.

The following table summarizes the BLOS calculations for Bull Valley roads.

Table 6) BLOS Ratings for Bull Valley Roads

Road	BLOS Score	Criteria
Rt120	E	High speed, high traffic, 2ft shoulder
Bull Valley	D	Medium speed, high traffic, no shoulder
Ridge	D	High speed, high traffic, no shoulder
Cold Springs	C	Low speed, low traffic, no shoulder
Fleming	D	Medium speed, medium traffic, no shoulder
Queen Anne	D	Medium speed, low traffic, no shoulder
Valley Hill	C	Medium speed, low traffic, no shoulder
Thompson	C	Medium speed, low traffic, no shoulder
Mason Hill	D	Medium speed, medium traffic, no shoulder
Crystal Springs	D	Medium speed, medium traffic, no shoulder
Cherry Valley	C	Medium speed, low traffic, no shoulder
Country Club	E	High Speed, high traffic, no shoulder
Greenwood	D	High speed, medium traffic, no shoulder
Walkup	D	High speed, high traffic, no shoulder
All Other Roads	B	Low speeds, low traffic, no shoulders

Bull Valley is eminently un-cyclable by all but the most experienced riders.

It should be noted that adding a 2 ft paved shoulder or widening the traffic lane from 12 to 14 feet will, in many cases, raise the BLOS score by one grade making all but 2 roads, Rt120 & Country Club, cyclable by average cyclists.

Bike Routes

There are currently no bike routes within the village. However, CMAP, Chicago Metropolitan Agency for Planning, has identified two such routes as part of the Northeastern Illinois Regional Greenways and Trails Plan.

CMAP has identified Bull Valley Rd and Crystal Springs Rd as planned bicycle routes. These two roads would provide for bicycle travel between

Crystal Lake and Woodstock, and McHenry and Woodstock, while simultaneously providing linkages into the McHenry County/Grand Illinois bike trail.

Posting signage along these roads proclaiming a Bull Valley Scenic Bikeway would have several affects:

- It advertises that both cars and bicycles share the road with a corresponding heightened awareness of each.
- Signage pertaining to bicycle rules of the road can also be posted
- Could be the first step toward protected greenway status for these 2 roads.

As time and funding permits, these two roads could be widened from their standard width of 12' per lane to 14' per lane, essentially paving the shoulders and restriping for a wider lane. Known as W.O.L., Wide Outside Lane, it provides more buffer space between bicycle and automobile. Cars can safely pass bikes without veering into the oncoming traffic lane. Widening the lanes in this manner reduces the overall footprint of the road when compared to a separate bike path plus road, and funding for the project can come from normal road maintenance funds rather than from special recreational funds that may not exist.

Walking/Hiking/Running

Pedestrians, to a greater degree, face the same risk as bicyclists: vulnerability to automobiles. There are no sidewalks in the village so they are forced to walk in the street or on road shoulders and face greater risk of harm due to the greater difference in speed between pedestrians and traffic.

There are two ways to maximize pedestrian safety:

1. Provide sidewalks/multiuse trails along side major roads.

This has the potential to severely impact the rural appearance of the village and should not be pursued.

2. Physically remove pedestrians from the major roadways.

By providing alternate walking routes, pedestrians can be kept away from the major roads. Just by looking a map it can be seen that the village

is being developed piecewise, large parcels of land get subdivided independently of other parcels with no interconnection to adjacent developments. Thus, the village is collection of residential islands with no connections between them except for the major roads.

Visiting an adjacent neighborhood requires getting into a car and driving, or walking to the main road, walking over to the next subdivision, and then walking to the destination. Interconnecting adjacent subdivisions with pedestrian trails, will keep pedestrians away from heavily automobile traffic and if extensively built, provides means for both pedestrians and bikes to travel village-wide off the major roads and away from the roads.

It should be recognized that currently, all walking/hiking in the village is of a recreational nature. There is no "destination" walking occurring because there are no destinations, i.e. retail stores, within the village to walk too. With the introduction of retail areas at the perimeter of the village, there is the opportunity to plan for "walkable communities" around the retail facilities by either including residential housing within the retail area or building a network of walking/biking paths linking the retail area with its surrounding residential neighbors. In an era of an increasingly aged population, this becomes vitally important to serve a population without access to motorized transportation.

Current Governmental Activity In March of 2010

Transportation Secretary Raymond LaHood issued a policy statement calling for full inclusion of pedestrians and bicyclists in transportation projects¹. Toward this goal, a number of bills have been introduced into the US legislature.

- H.R. 1443: Complete Streets Act of 2009

Complete Streets Act of 2009 - Requires each state to have in effect within two years a law, or each state department of transportation and metropolitan planning organization (MPO) an explicit policy statement that requires all federally-funded transportation projects, with certain

¹ http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm. United States Department of Transportation, Policy Statement on Bicycle and Pedestrian Accommodation, Regulations and Recommendations, Signed on March 11, 2010 and announced March 15, 2010

exceptions, to accommodate the safety and convenience of all users in accordance with certain complete streets principles. Defines "complete streets principles" as federal, state, local, or regional level transportation laws, policies, or principles which ensure that the safety and convenience of all users of a transportation system, including pedestrians, bicyclists, public transit users, children, older individuals, motorists, and individuals with disabilities, are accommodated in all phases of project planning and development.

- H.R. 4722: Active Community Transportation Act of 2010

This bill directs the Secretary of Transportation to carry out an active transportation investment program to encourage a mode shift to active transportation within selected communities which have development plans that provide safe and convenient opportunities to travel by bicycling and walking.

It requires the Secretary to make grants to communities through local or regional governmental organizations, multi-county special districts, or Indian tribes to carry out active transportation (bicycling and walking) infrastructure projects that connect people with public transportation, workplaces, residences, businesses, recreation areas, and other community activity centers.

There are exceptions to HR1443, one of which is based on "density", but at this time, it is unknown what that means and if the village would meet the criteria.

Funding

Several grants are available to provide funding for non-motorized transportation:

- The Livable Communities Act of 2010 (HR 4690/S 1619)

This bill creates the Office of Sustainable Housing and Communities within HUD, and establishes the Interagency Council on Sustainable Communities. It also creates a grant program for comprehensive planning and a sustainability challenge grant program.

- The Active Community Transportation Act ("The ACT") (HR 4722)

The bill establishes a competitive grant program within the Department of Transportation, which provides concentrated funding for communities to create active transportation networks that provide safe and convenient access for pedestrians and bicyclists.

- The Enhancing Livability for All Americans Act (HR 4287)

The bill creates the Office of Livability within the USDOT (inside the Office of the Secretary, an improvement over the Surface Transportation Authorization Act's proposal). It also creates a competitive grant programs for transportation planning and for projects, disseminates best practices on complete streets and other areas, and authorizes \$750 million a year.

- The Safe Routes to School Program Reauthorization Act (S 1156)

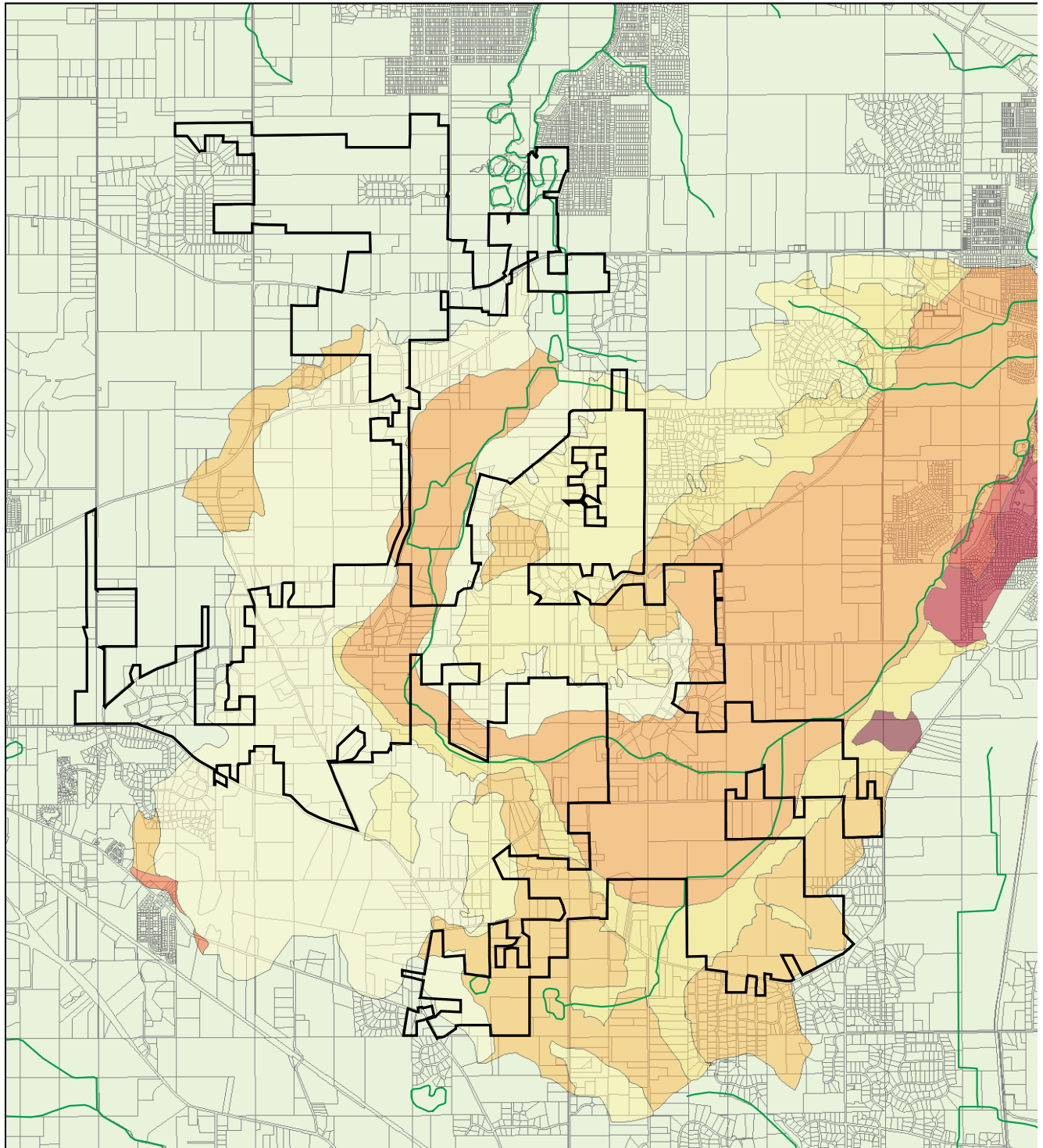
The new Safe Routes to School bill proposes to build on successes around the country and strengthen and expand the federal Safe Routes to School program.

- The Safe Routes to High Schools Act (HR 4021)

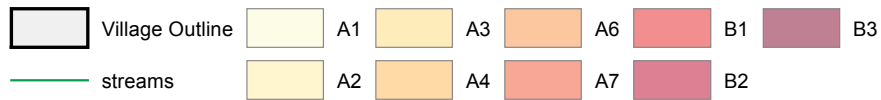
The bill expands eligibility for Safe Routes to School funding to high schools. The current federal Safe Routes to School program created in 2005 through SAFETEA-LU is making it safer for more children to walk and bicycle to school all across the country.

It should be noted that all these bills are in committee and not yet approved.

ADDENDUM IV: Boone Creek Watershed Sensitivity Map



Boone Creek Watershed Aquifer Sensitivity



Bull Valley and its surrounding planning area sits almost entirely atop the Boone Creek Watershed. Any water entering the ground within this area can cause severe damage to the creek itself. The most damaging area is classified as A1 and should be afforded extra scrutiny when developing properties in that area.

Definitions of Sensitivity ratings

Area A - Thick Aquifer Near Surface

- There is high potential for aquifer contamination.

Table 7) Aquifer Classifications: Area A

Category	Depth to Aquifer	Aquifer Type	Total Aquifer Thickness
A1	0-5 ft	Bedrock	>50 ft
A2	0-5 ft	Sand & Gravel and/or Bedrock	>50 ft
A3	5-25 ft	Bedrock	>50 ft
A4	5-25 ft	Sand & Gravel and/or Bedrock	>50 ft
A5	0-25 ft	Sand & Gravel	25-50 ft

-

Area B - Thin Aquifer Near Surface

There is a moderately high potential for aquifer contamination

Table 8) Aquifer Classifications: Area B

Category	Depth to Aquifer	Aquifer Type	Total Aquifer Thickness
B1	0-5 ft	Sand & Gravel	5-25 ft
B2	5-25 ft	Sand & Gravel and/or Bedrock	5-25 ft

ADDENDUM V: Native Landscaping Notes for Homeowners

Welcome to your new home in Bull Valley! You have chosen to live in a place that is not only beautiful because of its rolling hills and clear creeks, but which is recognized as one of the richest assemblages of native plants and animals in all of Illinois. Bull Valley has orchids, checkerspot butterflies, mottled sculpins, rainbow darters, turtleheads, fringed gentians and many other species that you may never see again in your lifetime, unless you see them here.

As you travel Bull Valley's roads you might notice that many residents have front and rear yard prairie restorations, great masses of woodland wildflowers, meandering creeks, seeps and springs, and alkaline fens. That is not normal in suburban Chicagoland. But it is in Bull Valley. These features aren't here by letting the land just do its thing. Most of these areas 10 and 15 years ago were thickets of buckthorn and honeysuckle or wetlands with nothing but reed canarygrass and yards with only Kentucky bluegrass. These are all invasive species that gladly take over except that landowners committed their time and energy to removing the invasives and encouraging the natives. Instead of becoming a neighborhood dominated by just 15-20 invasive species of plants and animals like the rest of suburbia, our community is diversified with almost 1000 different native species. We encourage you to participate in the fun of helping biodiversity happen on your property. You will be surprised and gratified by what you will see.

There are several ways to get started.

- 1) Contact the Wildflower Preservation and Propagation Committee (WPPC) info@thewppc.org 815-337-9502 which is McHenry County-based. This group offers a yearly seminar for homeowners at McHenry County College, usually in February. It also offers one-on-one mentoring with homeowners. It also sponsors the yearly native plant sale at McHenry County College, usually 1st weekend in May. Great group, with a good number of Bull Valley area homeowners already mentored.
- 2) Get a seed catalog from JF New www.cardnojfnew.com, Of Taylor Creek Nursery www.restorationnurseries.com. These catalogs provide a wealth of information to homeowners on which seed to plant in whatever habitat, and how to plant the seed. Plant seedlings can be purchased locally at the plant sale at McHenry County College in May, or Red Buffalo Nursery, near Hebron www.redbuffalonursery.com. Native trees and shrubs

can be purchased from Red Buffalo, JF New, Taylor Creek, Possibility Place Nursery near Monee www.possibilityplace.com (large selection), or Ohana Farms near Marengo www.ohanafarms.com. Another source for oaks is The Land Conservancy of McHenry County lhaderlein@conservemc.org.

It's always much less expensive to order from these places and pickup your trees, and shrubs than to have them shipped. However, young bare root trees and shrubs ship fairly reasonably.

- 3) Take a guided tour of a restoration. McHenry County Conservation District (MCCD) offers a lot of tours each year. Walk on the Wild Side offers 4-5 tours each summer of local homeowner restorations, typically 1 or 2 Bull Valley area homesites are involved each year. Contact cstuck2@comcast.net for the calendar.
- 4) Get involved with volunteer stewarding of a natural area. A couple of volunteer days is a great educational experience in understanding why and how to restore habitat. The Boger Bog/MCCD stewardship day is offered every 4th Saturday of every month 10 a.m-1 p.m. That site is all about woodland and savanna restoration. There are lots of others. Call MCCD to get the list of sites.
- 5) Buy a copy of Dick Young's *Kane County Wild Plants and Natural Areas*, the most user friendly guide to native plants and (weeds) applicable to McHenry County as well.
- 6) Buy a copy of *Peterson's Field Guide to Native Wildflowers*. It covers all of eastern U.S. so it has a lot of plants that don't grow here, but also almost all the plants that do, with some very good line drawings and identification characteristics. For the very committed who want to learn it all, *Plants of the Chicago Region* by Swink and Wilhelm is recommended. There is not a drawing in it, but every plant is listed with keys on identifying them, and most importantly, what associated plants grow with each plant, and what habitat is necessary.
- 7) Take MCCD's Naturalist Certificate class offered by Tom Simpson and MCCD's research center. This entails 2-3 days of intensive classes. Or take a class at the Chicago Botanic Gardens, or Morton Arboretum.
- 8) Get out and observe. Look at every plant growing on your property. Learn their characteristics and favorite growing locations and conditions and seasons. Take photographs. Then do any of the above, and

it will all begin to sort itself out, and you will start creating bigger and better habitat niches on your property, and year by year decide that you can diminish a little bit more of that Kentucky bluegrass lawn.

Thanks to Bull Valley resident and restorationist Ders Anderson for providing this information.

ADDENDUM VI: Seed Mixes for Prairie Restoration

The annual ryegrass and spring oats that is in McHenry county's normal prairie mix is typical in most prairie seeding mixes (not wetland or savanna). When prairie seeds are broadcast or raked into the soil in a restoration, you need a quick growing **cover crop** ie: (ryegrass and oats) to provide competition to all of the weed seeds that are in the soil and that will also provide fuel for controlled fire in the first fall or spring after planting the prairie seeds. Otherwise the weed seeds will grow thick and high and shade out and generally out-compete the 1st year prairie seed growth. You can't just toss out prairie seeds and create a prairie without management for the first 3 years. This is the most common mistake first time prairie restorationists make. They end of with a field of 4 foot weeds the first year, with 1 inch prairie seedlings down below totally shaded out. Prairie seedlings and weeds don't provide adequate fuel for a burn, that's another reason why the ryegrass and oats are mixed in. The annual ryegrass and oats don't germinate the second year, the perennial rye does, but will become out-competed by the prairie seedlings after the 3rd and 4th years and it will disappear.

Prairie seedlings spend their first year putting down deeper roots and they are almost invisible on the surface because the green growth is so small relative to the weeds.

The seeded area should be mowed with as high a setting on the lawn mower as possible 3-4 inches, even 6 inches if possible for the 1st two years, and then a May and June mowing the 3rd year and then you let the prairie grow on its own without any more mowing, although selective cutting out of weed seed heads and herbiciding spots of noxious weeds that survived is still important (Canada thistle, reed canarygrass, phragmites).

McHenry County Conservation District lists several good sources for seeds and seedlings. Natural Gardens in St. Charles is good for seedlings. Any others in Northern Illinois are good too. However, I wouldn't use a source that is too far out of our growing area. There's always been a discussion among habitat restorationists about trying to use plant and seed sources as close to home as possible because the plants from hundreds of miles away have different genetics due to the thousands of years of their evolution under relatively consistent climatic conditions (same reason

gardeners use the plant zone maps, frost, rainfall, growing season and temperatures vary across the country).

With climate change coming, there's a lot of rethinking the issue and there's no clear consensus as to what to do. McHenry County will be warming up and getting wetter in the near and far future, more like areas south of us, not north of us. JF New (Walkerton Indiana) and Possibility Place (Monee Illinois) both source their stock mostly from a 100 mile radius of their locations.

Developers usually purchase a seed mix from the major seed producers such as JF New, Applied Ecological Services and others. The seed mixes include usually 20-30 different native species and are designed for specific habitat conditions such as wetland, stormwater swales, high profile prairie (including lots of tall grasses such as big bluestem, switchgrass, Indian grass), or short profile prairie (much fewer tall grass seeds and more shorter profile seeds such as little bluestem). These mixes are usually pretty good and are what developers are used to doing. These this mixes or their equivalent from another approved seed source would be appropriate.

Seed companies don't often sell woodland seed mix or savanna seed mix because the seed is very expensive and harder to come by. They do sell these seeds individually by the oz. or pound, but these mixes are expensive.

Creating a list for a variety of habitat conditions is quite a task, and since developers don't have many options but to go to the local seed purveyors, it's easier to stick with their lists. Prairie and wetland seed costs in the range of \$800-1200/acre, plus the cost of installation, plus the cost of management for several years (mowing 2-3 times a year, and a controlled burn or two if possible), and some potential herbiciding if especially noxious weeds are present (Canada thistle, phragmites). Usually by the third year, a single late spring mowing is all that's needed.

A potential abuse of seed source can be high volume 'prairie' seed suppliers from far outside of a genetically reasonable zone. I've seen cheap quantities of seed that can be bought from Kansas and Colorado growers for instance, and that should be avoided. A lot of these sales go to downstate farmers who want to restore habitat for hunting purpose or under the federal CRP program (payment to let your lower grade farmland become habitat).

Thanks to Bull Valley resident and restorationist Ders Anderson for providing this information.

ADDENDUM VII: List of Plants Appropriate for Bull Valley Soil Types

From McHenry County Conservation District, Native Plants
<http://www.mccdistrict.org/web/di-native-plants.htm>

Table 9) Recommended Prairie Plants

White Flowers	Yellow /Orange Flowers (cont'd)
Wild Quinine, Parthenium integrifolium	Prairie Dock, Silphium terebinthinaceum
White Prairie Clover, Petalostemum candidum	Prairie Coreopsis, Coresopsis palmata
White Indigo, Baptisia leucantha	Heartleaf Golden Alexanders, Zizia aptera
Shooting Star, Dodecatheon meadia	Compass Plant, Silphium laciniatum
New Jersey Tea, Ceanothus americanus	Butterfly Weed, Asclepias tuberosa
Flowering Spurge, Euphorbia corollata	Black-Eyed Susan, Rudbeckia hirta
Cream Indigo, Baptisia leucophaea	
Bush Clover, Lespedeza capitata	Pink/Red Flowers
	Spiderwort, Tradescantia ohiensis
Yellow /Orange Flowers	Sky Blue Aster, Aster azureus
Yellow Coneflower, Ratibida pinnata	Silky Aster, Aster sericeus
Western Sunflower, Helianthus occidentalis	Purple Prairie Clover, Petalostemum purpureum
Showy Goldenrod, Solidago speciosa	Prairie Smoke, Geum triflorum
Rosin Weed, Silphium integrifolium	Prairie Phlox, Phlox pilosa
Prickly Pear Cactus, Opuntia humifusa	Prairie Blue-Eyed Grass, Sisyrinchium campestre
Prairie Sunflower, Helianthus rigidus	Prairie Blazingstar, Liatris pycnostachya
	Pale Purple Coneflower, Echinacea pallida
	Leadplant, Amorpha canescens

Blue/Purple Flowers	Prairie Grasses
Bird's Foot Violet, Viola pedata	Switch Grass, Panicum virgatum
Bergamot, Monarda fistulosa	Side Oats Grama, Bouteloua curtipendula
Aromatic Aster, Aster oblongifolius	Prairie Dropseed, Sporobolus heterolepis
	Little Bluestem, Andropogon scoparius
Green Flowers	Indian Grass, Sorghastrum nutans
Rattlesnake Master, Eryngium yuccifolium	Big Bluestem, Andropogon gerardii
Alum Root, Andropogon gerardii	

Table 10) Recommended Woodland Plants

White Flowers	Ferns (cont'd)
Bloodroot , <i>Sanguinaria canadensis</i>	Lady Fern, <i>Athyrium filix-femina</i>
Dutchman's Breeches, <i>Dicentra cucullaria</i>	Maidenhair Fern, <i>Adiantum pedatum</i>
False Solomon's Seal, <i>Smilacena racemosa</i>	Royal Fern, <i>Osmunda regalis</i>
Mayapple, <i>Podophyllum peltatum</i>	Sensitive Fern, <i>Onoclea sensibilis</i>
Rue Anemone, <i>Anemonella thalictroides</i>	Silky Wild Rye, <i>Elymus villosus</i>
Sharp-lobed Hepatica, <i>Hepatica acutiloba</i>	Woodland Brome, <i>Bromus pubescens</i>
Virgin's Bower , <i>Clematis virginiana</i>	
White Baneberry, <i>Actaea pachypoda</i>	Yellow/Orange Flowers
White Trillium, <i>Trillium Grandiflorum</i>	Bellwort, / <i>Uvularia grandiflora</i>
	Elm-leaved Goldenrod, <i>Solidago ulmifolia</i>
Blue/Purple Flowers	Trout Lily, <i>Erythronium americanum</i>
Jacob's Ladder, <i>Polemonium reptans</i>	Turk's Cap Lily, <i>Lilium michiganense</i>
Tall Bellflower, <i>Campanula americana</i>	Zig-Zag Goldenrod, <i>Solidago flexicaulis</i>
Virginia Bluebells, <i>Mertensia virginica</i>	Red Trillium, <i>Trillium erectum</i>
Virginia Waterleaf, <i>Hydrophyllum virginiana</i>	Wild Columbine, <i>Aquilegia canadensis</i>
Wild Geranium, <i>Geranium maculatum</i>	
Woodland Phlox, <i>Phlox divaricata</i>	

Ferns	Blue/Purple Flowers
Bottlebrush Grass, <i>Hystrix patula</i>	Jacob's Ladder, <i>Polemonium reptans</i>
Bracken Fern, <i>Pteridium aquilinum</i>	Tall Bellflower, <i>Campanula americana</i>
Cinnamon Fern, <i>Osmunda claytonia</i>	Virginia Bluebells, <i>Mertensia virginica</i>
Interrupted Fern, <i>Osmunda claytonia</i>	Virginia Waterleaf, <i>Hydrophyllum virginiana</i>

Table 11) Recommended Wetland Plants

White Flowers	Pink/Red Flowers
Angelica, Angelica atropurpurea	Cardinal Flower, Lobelia cardinalis
Boneset, Eupatorium perfoliatum	Joe-Pye-Weed, Eupatorium maculatum
Buttonbush, Cephalanthus occidentalis	Marsh Phlox, Phlox glaberrima
Culver's Root, Veronicastrum virginianum	Nodding Onion, Allium cernuum
Mountain Mint, Pycnanthemum virginianum	Queen-of-the-Prairie, Filipendula rubra
White Water Lily, Nymphaea tuberosa	Swamp Milkweed, Asclepias incarnata
Yellow/Orange Flowers	Blue/Purple Flowers
Cup Plant, Silphium perfoliatum	Blue Flag Iris, Iris virginica shrevei
Golden Alexander, Zizia anrea	Blue Vervain, Verbena hastata
Marsh Marigold, Caltha palustris	Great Blue Lobelia, Lobelia siphilitica
Sneezeweed, Helenium autumnale	Ironweed, Vernonia fasciculata
Yellow Star Grass, Hypoxis hirsuta	Marsh (Spike) Blazingstar, Liatris spicata
Yellow Water Lily, Nuphar advena	New England Aster, Aster novae-angliae
	Obedient Plant, Physostegia virginiana
Green/Brown Flowers	Pickrel Weed, Pontederia cordata
Burreed, Sparganium eurycarpum	
Calamagrostis canadensis , Cord Grass	Wetland Grasses

Skunk cabbage, Symplocarpus foetidus	Blue Joint Grass, Calamagrostis canadensis
Sweet Flag, Acorus calamus	Cord Grass, Spartina pectinata

Table 12) Recommended Shrubs Trees and Vines

Shrubs	Trees (cont'd)
Arrowwood Viburnum, Viburnum dentatum	Black Cherry, Prunus serotina
Blackhaw, Viburnum prunifolium	Black Walnut, Juglans nigra
Bladdernut, Staphylea trifolia	Bur Oak, Quercus macrocarpa
Buttonbush, Cephalanthus occidentalis	Hackberry, Celtis occidentalis
Hazelnut, Corylus americana	Ironwood, Ostrya virginiana
Lead Plant, Amorpha canescens	Linden or Basswood, Tilia americana
Meadowseet, Spirea alba	Ohio Buckeye, Aesculus glabra
Nannyberry, Viburnum dentatum	Red Oak, Quercus rubra
New Jersey Tea, Cenothus americanus	Shagbark Hickory, Carya ovata
Red Osier Dogwood, Cornus stolonifera	Slippery Elm, Ulmus rubra
Service Berry, Amelanchier arborea	Sugar Maple, Acer saccharum
Silky Dogwood, Cornus obliqua	White Ash, Fraxinus americanus
Wild Plum, Prunus americana	White Oak, Quercus alba
Trees	Vines
American Elm, Ulmus americana	Bittersweet, Celastrus scandens
Bitternut Hickory, Carya cordiformis	Virgin's Bower, Clematis virginiana

ADDENDUM VIII: Soils of McHenry County

Due to its level of detail, this is a four part map of the Bull Valley Area.

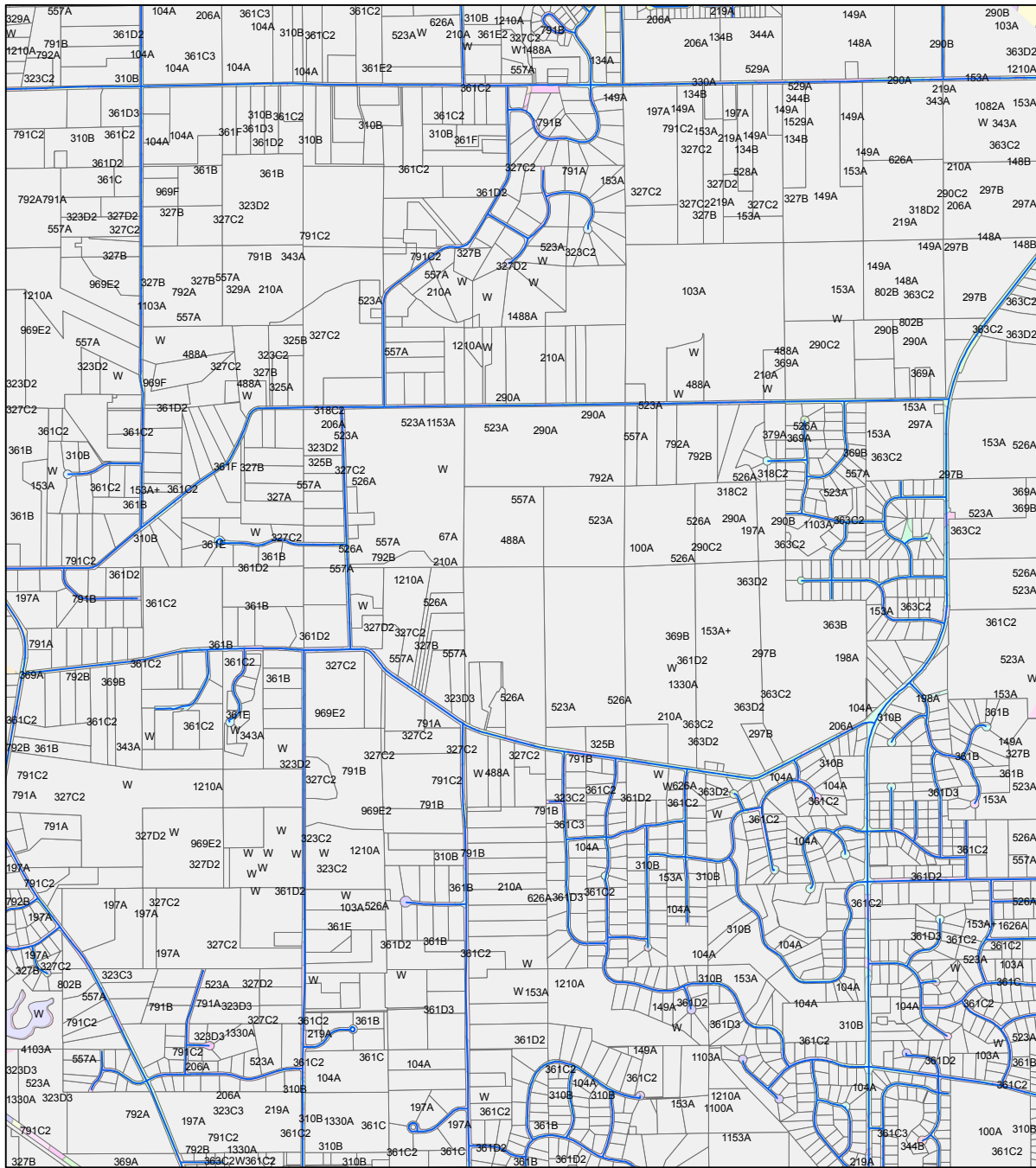
The complete document, Soil Survey of McHenry County Illinois, is available for download from:

http://soildatamart.nrcs.usda.gov/Manuscripts/IL111/0/McHenry_IL.pdf

Unfortunately, it does not contain maps. To obtain soil maps, it's easiest to just request a CD ROM from the state soil survey office. Paper copies are available too.

State Conservationist
2118 W. Park Ct.
Champaign, Il 61821
Phone: 217-353-6600
FAX: 217-353-6676

Map 3: Soils of Southeast Quadrant of Bull Valley Area



3

Table 13) Key to Soil Codes

Code	Description
59A	Lisbon silt loam, 0 to 2 percent slopes
59B	Lisbon silt loam, 2 to 4 percent slopes
60C2	La Rose loam, 5 to 10 percent slopes, eroded
62A	Herbert silt loam, 0 to 2 percent slopes
67A	Harpster silty clay loam, 0 to 2 percent slopes
87A	Dickinson sandy loam, 0 to 2 percent slopes
87B	Dickinson sandy loam, 2 to 5 percent slopes
87B2	Dickinson sandy loam, 2 to 5 percent slopes, eroded
100A	Palms muck, 0 to 2 percent slopes
103A	Houghton muck, 0 to 2 percent slopes
104A	Virgil silt loam, 0 to 2 percent slopes
134A	Camden silt loam, 0 to 2 percent slopes
134B	Camden silt loam, 2 to 5 percent slopes
146A	Elliott silt loam, 0 to 2 percent slopes
146B	Elliott silt loam, 2 to 4 percent slopes
148A	Proctor silt loam, 0 to 2 percent slopes
148B	Proctor silt loam, 2 to 5 percent slopes
149A	Brenton silt loam, 0 to 2 percent slopes
152A	Drummer silty clay loam, 0 to 2 percent slopes
153A	Pella silty clay loam, 0 to 2 percent slopes
153A+	Pella silt loam, 0 to 2 percent slopes, overwash
172A	Hoopeston sandy loam, 0 to 2 percent slopes
189A	Martinton silt loam, 0 to 2 percent slopes
197A	Troxel silt loam, 0 to 2 percent slopes
198A	Elburn silt loam, 0 to 2 percent slopes
206A	Thorp silt loam, 0 to 2 percent slopes
210A	Lena muck, 0 to 2 percent slopes
219A	Millbrook silt loam, 0 to 2 percent slopes
221B	Parr silt loam, 2 to 5 percent slopes
221C2	Parr silt loam, 5 to 10 percent slopes, eroded
223B	Varna silt loam, 2 to 4 percent slopes
223C2	Varna silt loam, 4 to 6 percent slopes, eroded
223D2	Varna silt loam, 6 to 12 percent slopes, eroded
228B	Nappanee silt loam, 2 to 4 percent slopes
232A	Ashkum silty clay loam, 0 to 2 percent slopes
290A	Warsaw loam, 0 to 2 percent slopes
290B	Warsaw loam, 2 to 4 percent slopes
290C2	Warsaw loam, 4 to 6 percent slopes, eroded
297A	Ringwood silt loam, 0 to 2 percent slopes
297B	Ringwood silt loam, 2 to 4 percent slopes
298B	Beecher silt loam, 2 to 4 percent slopes
310B	McHenry silt loam, 2 to 4 percent slopes
318A	Lorenzo loam, 0 to 2 percent slopes
318B	Lorenzo loam, 2 to 4 percent slopes
318C2	Lorenzo loam, 4 to 6 percent slopes, eroded
318D2	Lorenzo loam, 6 to 12 percent slopes, eroded
323B	Casco loam, 2 to 4 percent slopes

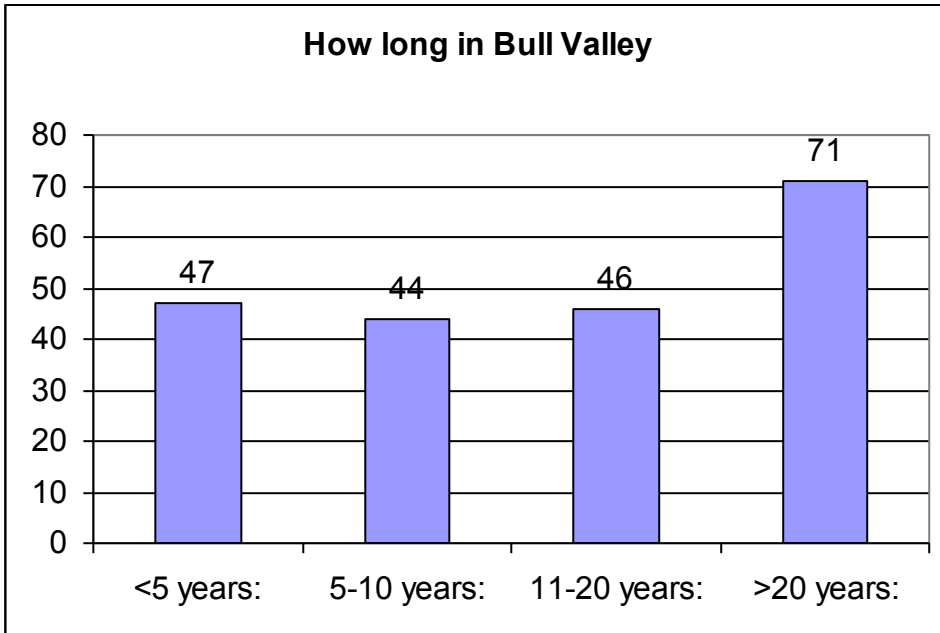
Code	Description
369A	Waupecan silt loam, 0 to 2 percent slopes
369B	Waupecan silt loam, 2 to 4 percent slopes
379A	Dakota loam, 0 to 2 percent slopes
379B	Dakota loam, 2 to 4 percent slopes
488A	Hoopole loam, 0 to 2 percent slopes
503B	Rockton silt loam, 2 to 6 percent slopes
512A	Danabrook silt loam, 0 to 2 percent slopes
512B	Danabrook silt loam, 2 to 5 percent slopes
523A	Dunham silty clay loam, 0 to 2 percent slopes
526A	Grundelein silt loam, 0 to 2 percent slopes
527B	Kidami silt loam, 2 to 4 percent slopes
527C	Kidami silt loam, 4 to 6 percent slopes
527C2	Kidami loam, 4 to 6 percent slopes, eroded
527D	Kidami silt loam, 6 to 12 percent slopes
527D2	Kidami loam, 6 to 12 percent slopes, eroded
527D3	Kidami clay loam, 6 to 12 percent slopes, severely eroded
528A	Lahoguess loam, 0 to 2 percent slopes
529A	Selma loam, 0 to 2 percent slopes
530B	Ozaukee silt loam, 2 to 4 percent slopes
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded
530C3	Ozaukee silty clay loam, 4 to 6 percent slopes, severely eroded
530D2	Ozaukee silt loam, 6 to 12 percent slopes, eroded
530D3	Ozaukee silty clay loam, 6 to 12 percent slopes, severely eroded
530E	Ozaukee silt loam, 12 to 20 percent slopes
543B	Piscasaw silt loam, 2 to 4 percent slopes
544A	Torox silt loam, 0 to 2 percent slopes
545A	Windere silt loam, 0 to 2 percent slopes
545B	Windere silt loam, 2 to 4 percent slopes
557A	Millstream silt loam, 0 to 2 percent slopes
570A	Martinsville silt loam, 0 to 2 percent slopes
570B	Martinsville silt loam, 2 to 4 percent slopes
570C2	Martinsville silt loam, 4 to 6 percent slopes, eroded
618E	Senachwine silt loam, 12 to 20 percent slopes
618F	Senachwine silt loam, 20 to 30 percent slopes
624B	Caprell silt loam, 2 to 4 percent slopes
624C2	Caprell silt loam, 4 to 6 percent slopes, eroded
624D2	Caprell silt loam, 6 to 12 percent slopes, eroded
624E	Caprell silt loam, 12 to 20 percent slopes
625A	Geryune silt loam, 0 to 2 percent slopes
625B	Geryune silt loam, 2 to 5 percent slopes
626A	Kish loam, 0 to 2 percent slopes
635A	Lismod silt loam, 0 to 2 percent slopes
635B	Lismod silt loam, 2 to 4 percent slopes
636B	Parmod silt loam, 2 to 5 percent slopes
656B	Octagon silt loam, 2 to 4 percent slopes
656C2	Octagon silt loam, 4 to 6 percent slopes, eroded
791A	Rush silt loam, 0 to 2 percent slopes

Code	Description
323C2	Casco loam, 4 to 6 percent slopes, eroded
323C3	Casco clay loam, 4 to 6 percent slopes, severely eroded
323D2	Casco loam, 6 to 12 percent slopes, eroded
323D3	Casco clay loam, 6 to 12 percent slopes, severely eroded
325A	Dresden silt loam, 0 to 2 percent slopes
325B	Dresden silt loam, 2 to 4 percent slopes
327A	Fox silt loam, 0 to 2 percent slopes
327B	Fox silt loam, 2 to 4 percent slopes
327C2	Fox silt loam, 4 to 6 percent slopes, eroded
327D2	Fox loam, 6 to 12 percent slopes, eroded
329A	Will loam, 0 to 2 percent slopes
330A	Peotone silty clay loam, 0 to 2 percent slopes
343A	Kane silt loam, 0 to 2 percent slopes
344A	Harvard silt loam, 0 to 2 percent slopes
344B	Harvard silt loam, 2 to 5 percent slopes
361B	Kidder loam, 2 to 4 percent slopes
361C	Kidder loam, 4 to 6 percent slopes
361C2	Kidder loam, 4 to 6 percent slopes, eroded
361C3	Kidder clay loam, 4 to 6 percent slopes, severely eroded
361D2	Kidder loam, 6 to 12 percent slopes, eroded
361D3	Kidder clay loam, 6 to 12 percent slopes, severely eroded
361E	Kidder loam, 12 to 20 percent slopes
36100	Kidder loam, 12 to 20 percent slopes, eroded
361F	Kidder silt loam, 20 to 30 percent slopes
363B	Griswold loam, 2 to 4 percent slopes
363C2	Griswold loam, 4 to 6 percent slopes, eroded
363D2	Griswold loam, 6 to 12 percent slopes, eroded

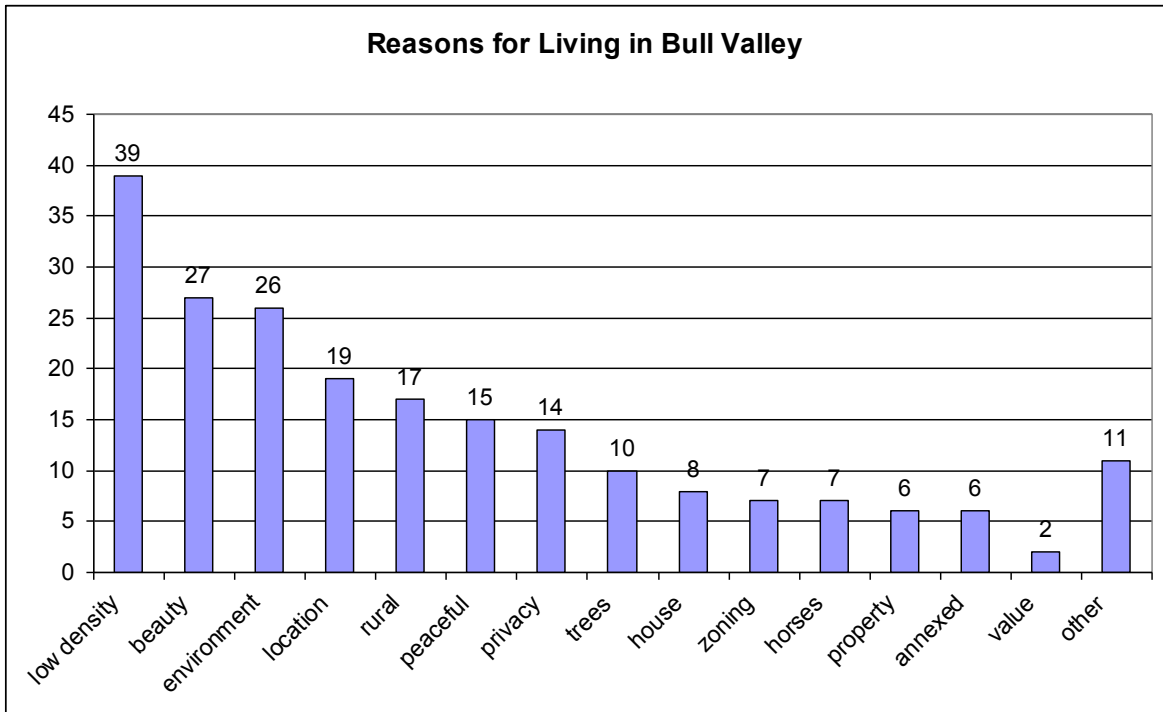
Code	Description
791B	Rush silt loam, 2 to 4 percent slopes
791C2	Rush silt loam, 4 to 6 percent slopes, eroded
792A	Bowes silt loam, 0 to 2 percent slopes
792B	Bowes silt loam, 2 to 4 percent slopes
802B	Orthents, loamy, undulating
865	Pits, gravel
969E2	Casco-Rodman complex, 12 to 20 percent slopes, eroded
969F	Casco-Rodman complex, 20 to 30 percent slopes
1067A	Harpster silt loam, 0 to 2 percent slopes, undrained
1082A	Millington silt loam, 0 to 2 percent slopes, undrained, occasionally flooded
1100A	Palms muck, 0 to 2 percent slopes, undrained
1103A	Houghton muck, 0 to 2 percent slopes, undrained
1153A	Pella silty clay loam, 0 to 2 percent slopes, undrained
1206A	Thorp silt loam, 0 to 2 percent slopes, undrained
1210A	Lena muck, 0 to 2 percent slopes, undrained
1330A	Peotone silty clay loam, 0 to 2 percent slopes, undrained
1488A	Hooppole loam, 0 to 2 percent slopes, undrained
1529A	Selma loam, 0 to 2 percent slopes, undrained
1626A	Kish loam, 0 to 2 percent slopes, undrained
1776A	Comfrey loam, 0 to 2 percent slopes, undrained, occasionally flooded
4103A	Houghton muck, 0 to 2 percent slopes, ponded
8082A	Millington silt loam, 0 to 2 percent slopes, occasionally flooded
8776A	Comfrey loam, 0 to 2 percent slopes, occasionally flooded
W	Water

ADDENDUM IX: Results of the 2009 Bull Valley Plan Survey

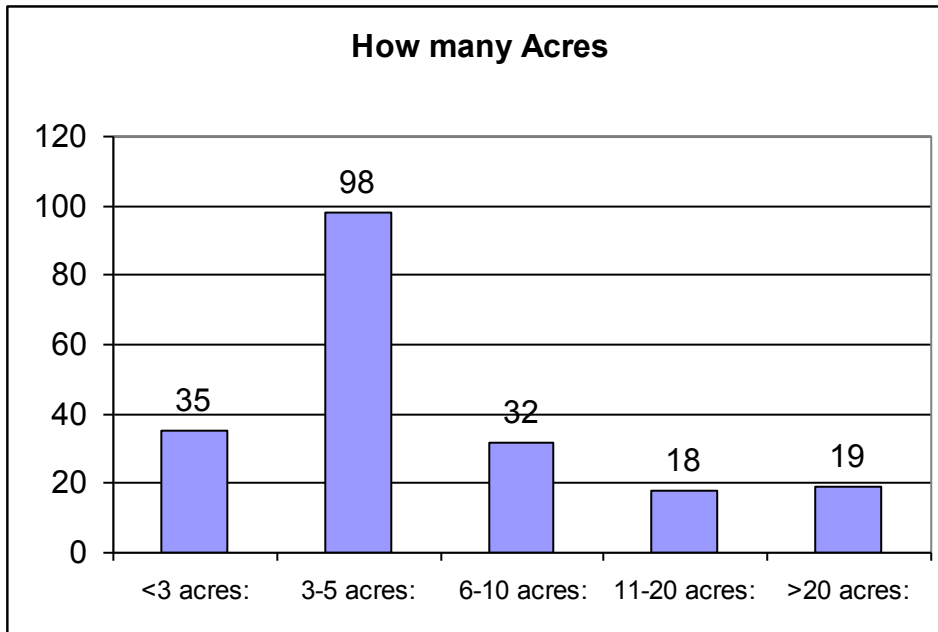
Q1: How long have you lived in Bull Valley?



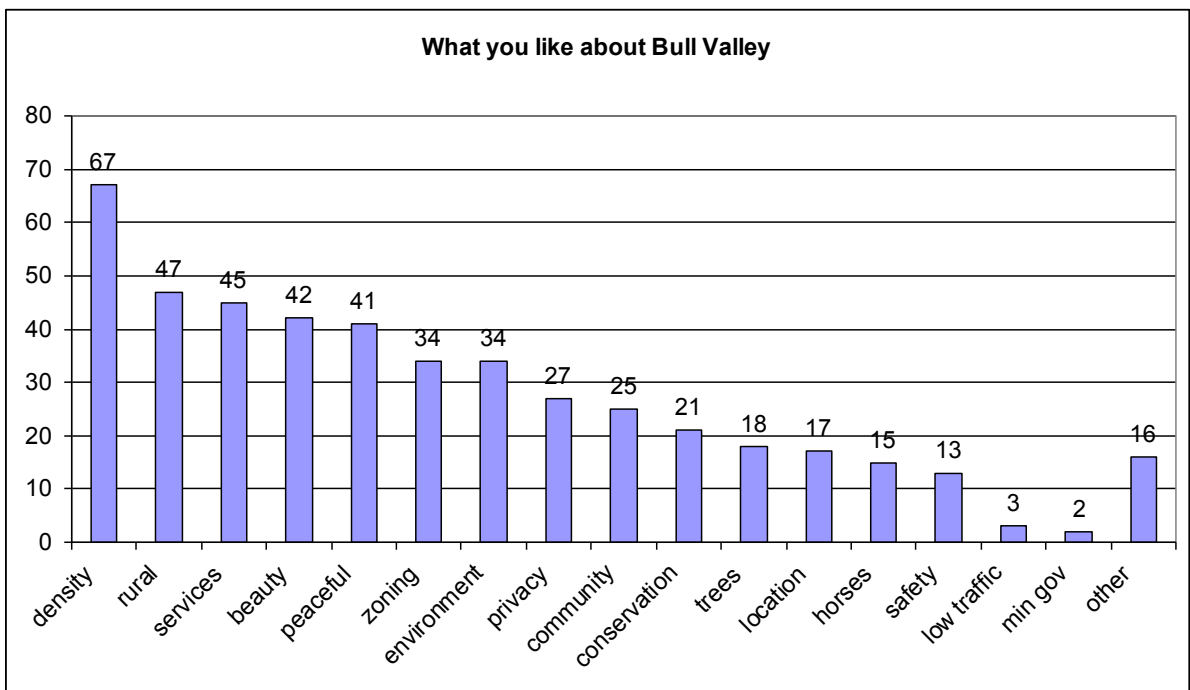
Q2: If not a lifelong resident why did you choose the Village over surrounding communities?



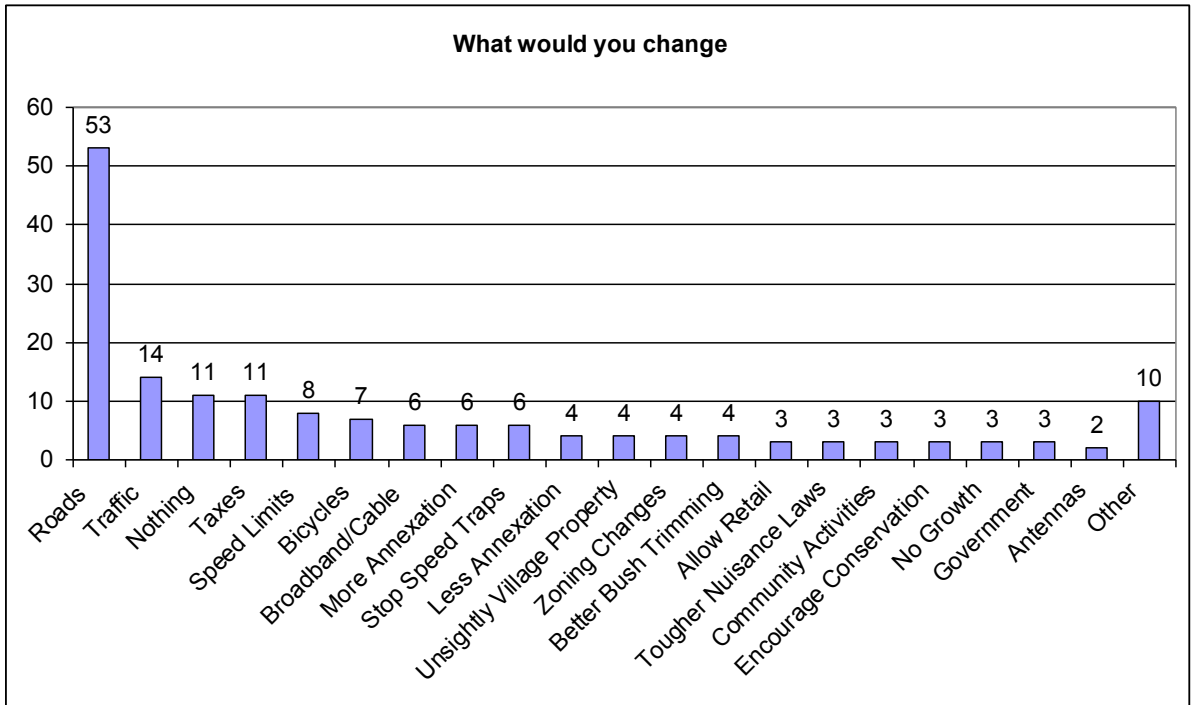
Q3: In number of acres how large is your parcel in the Village?



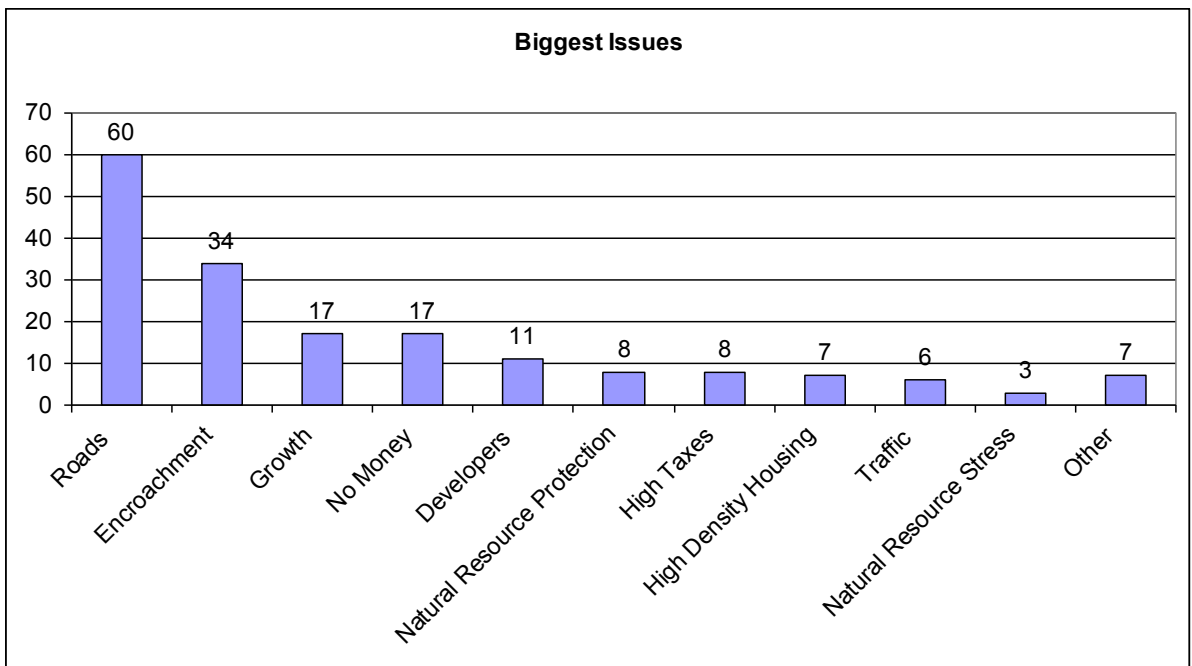
Q4: In order of importance please list 3 things you like and appreciate about the Village.



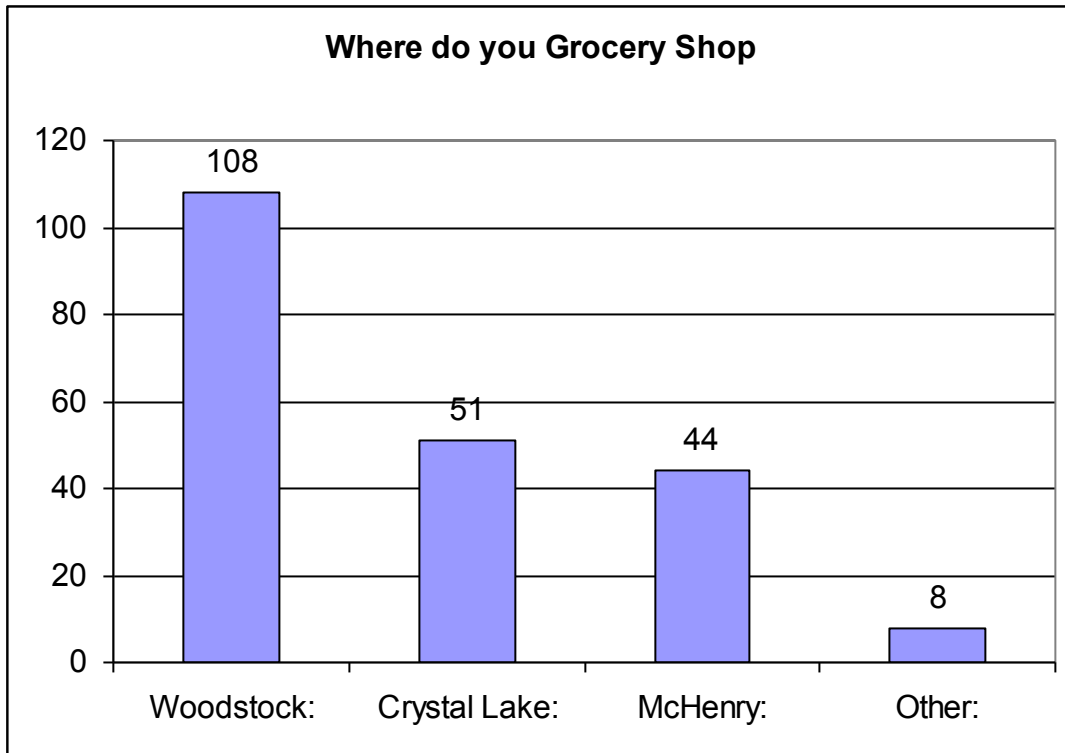
Q5: If you could, what would be the one thing you would change about Bull Valley?



Q6: In your opinion, what is the biggest issue facing the Village today?



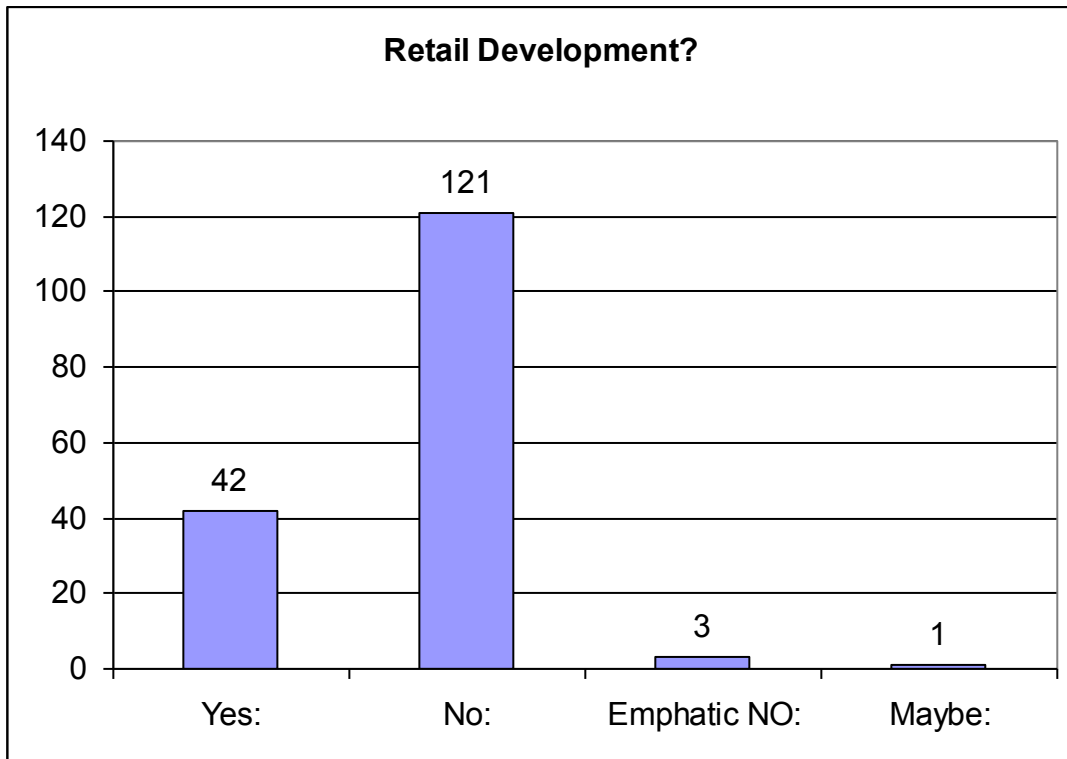
Q7: Where do you do the majority of your grocery shopping?



Q8: Where do you do most of your other shopping? (Please list the town or towns):



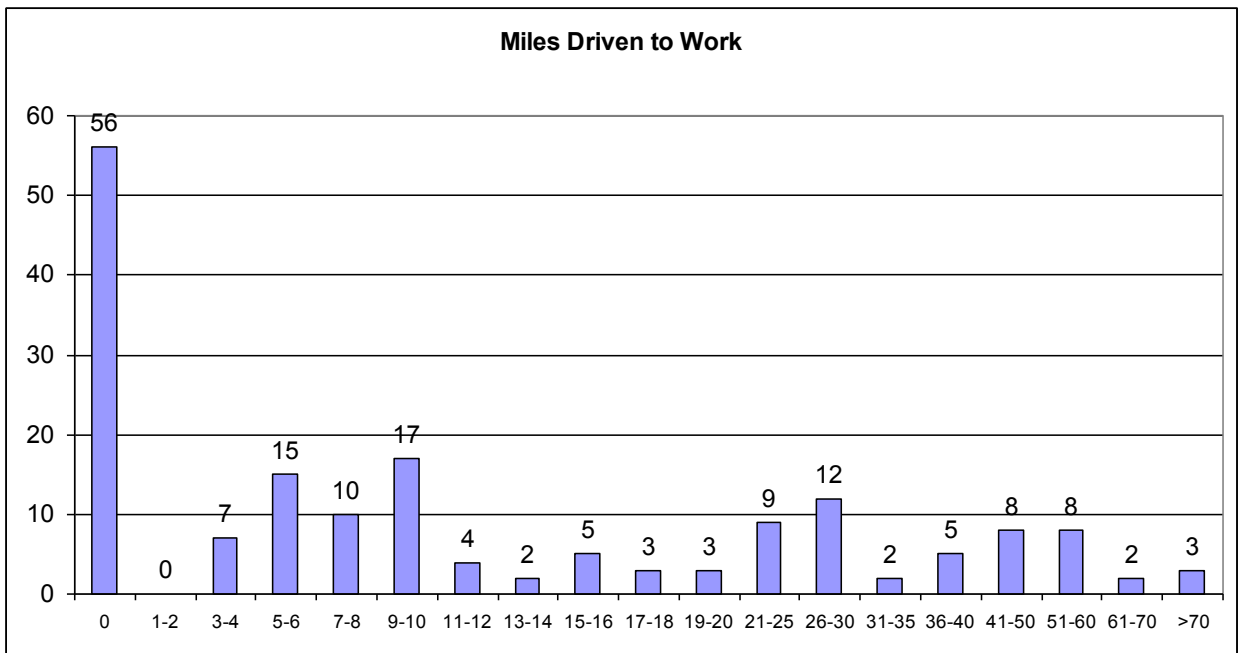
Q9: Would you like to see limited retail development in the village?



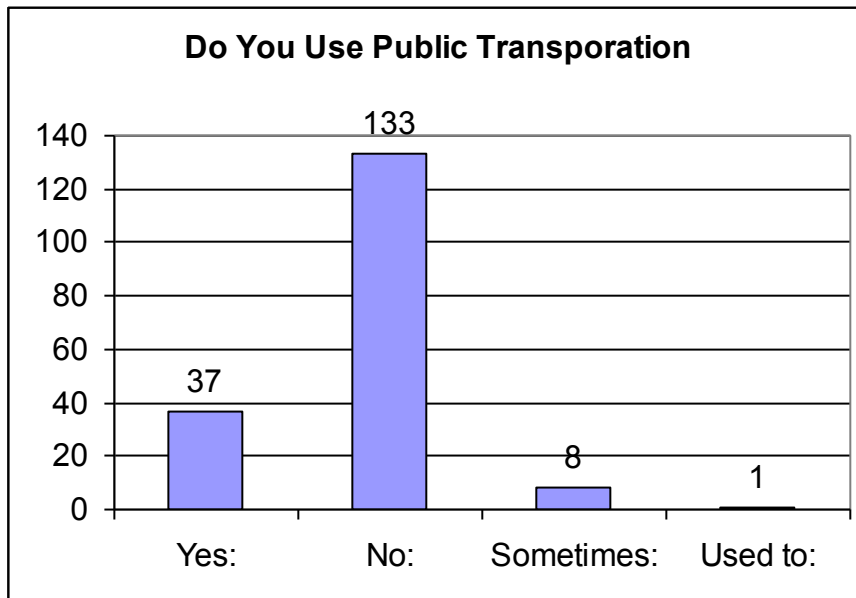
Q10: If Yes, why, and what type of retail would you prefer?



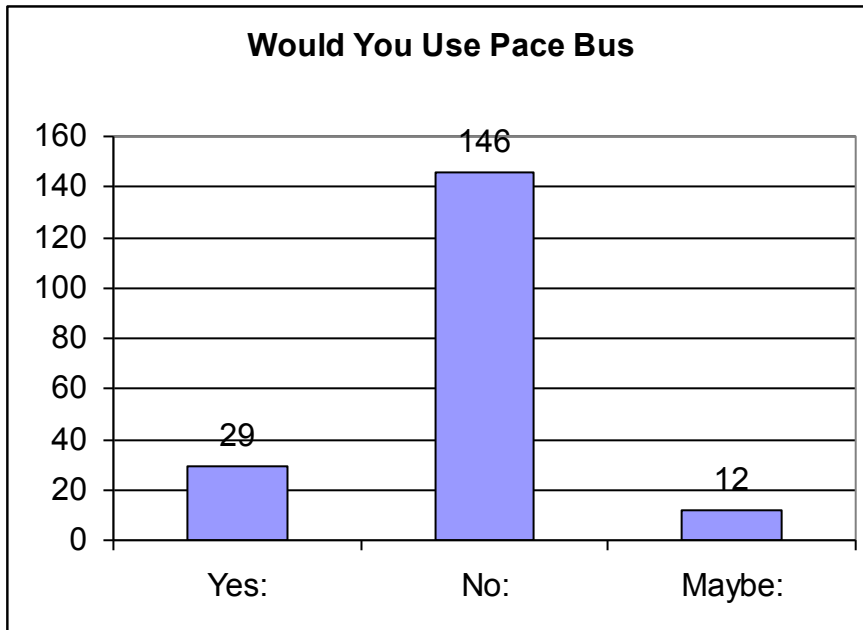
Q11 Approximately how far do you travel for work?



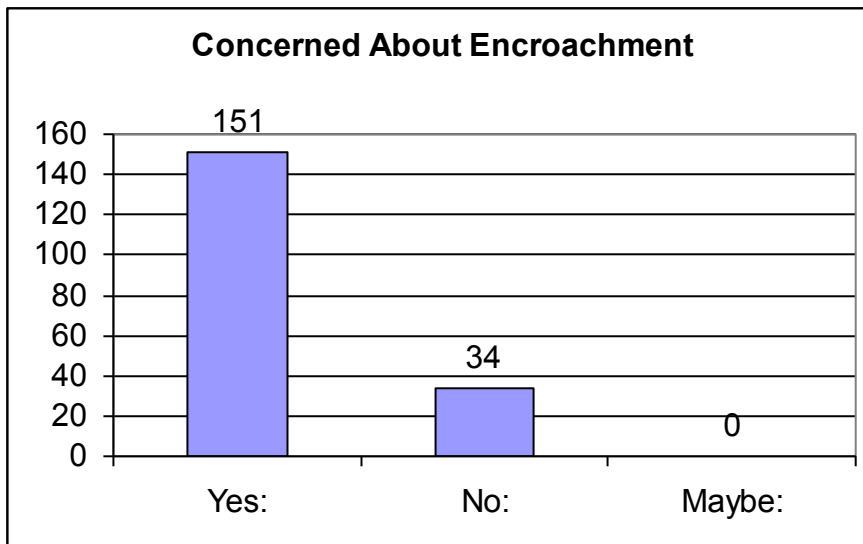
Q12: Do you use public transportation?



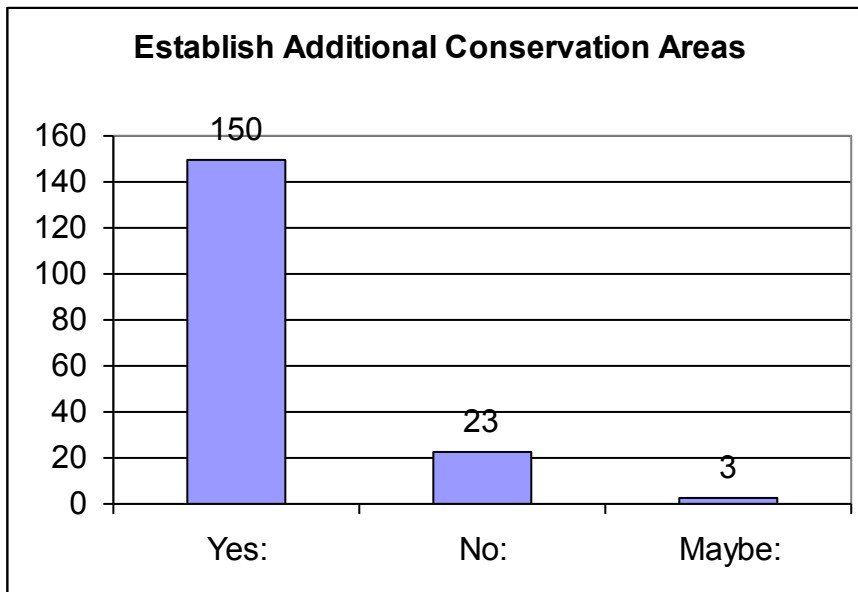
Q13: If Pace bus service were available in the Village would you use it?



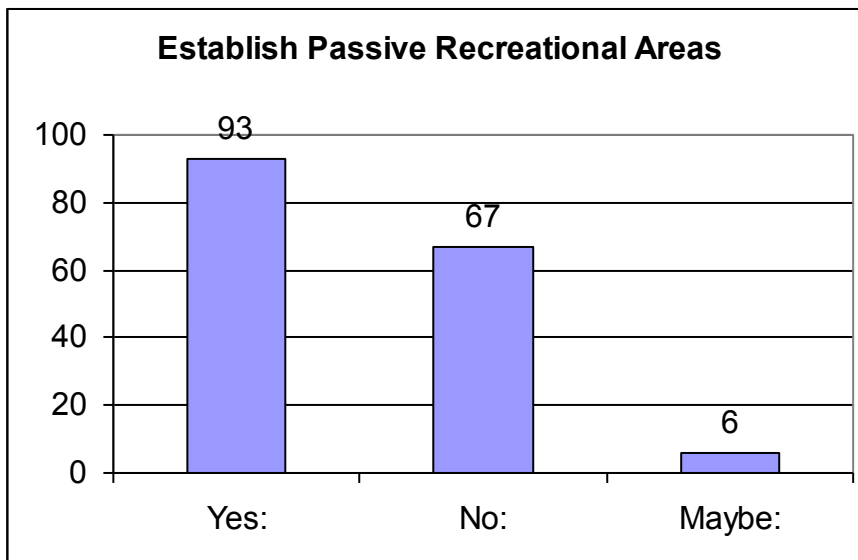
Q14: Are you concerned about encroachment of surrounding communities on the Village?



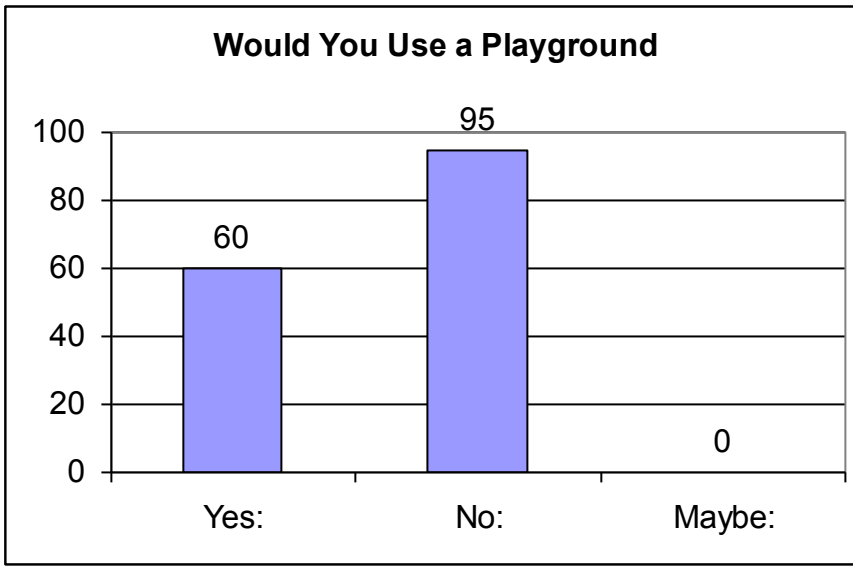
Q15: Would you be in favor of establishing additional conservation areas in the Village?



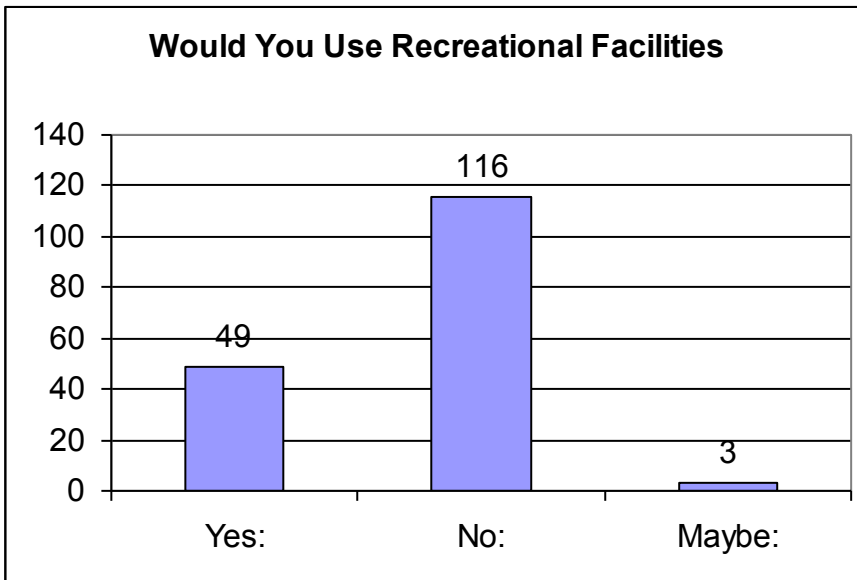
Q16: Would you like to see passive recreational areas established in the Village?



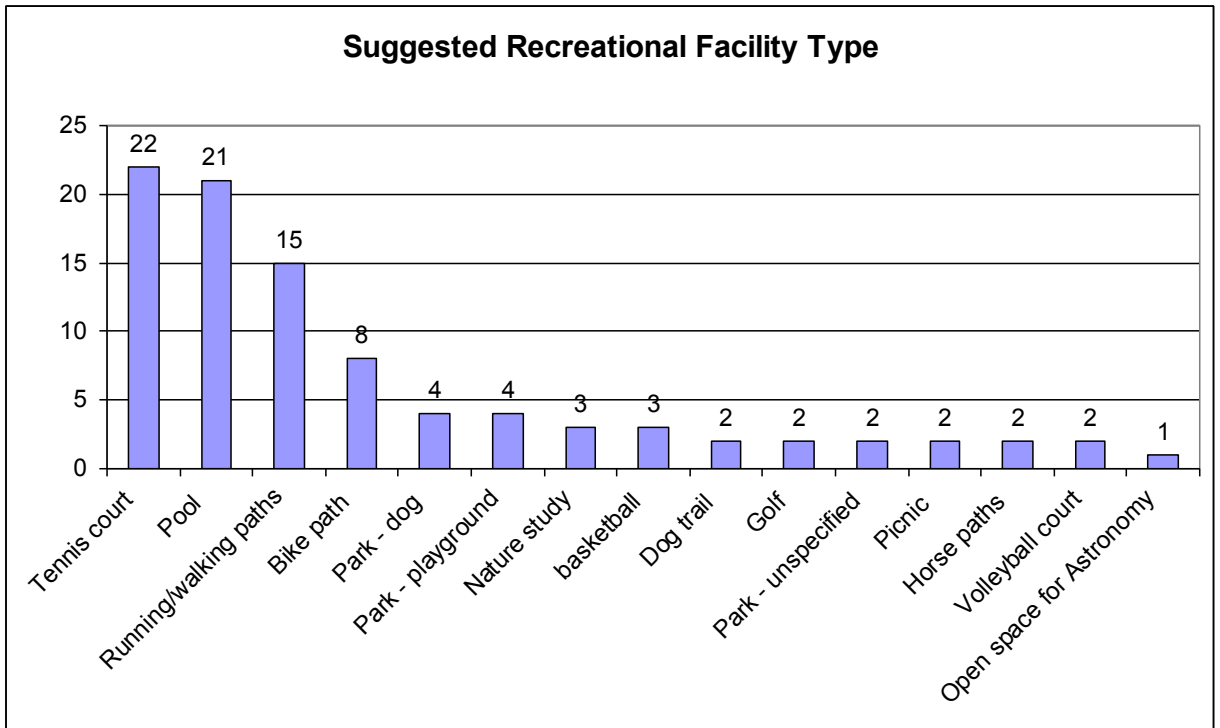
Q17: Would you take your children to a playground in the Village?



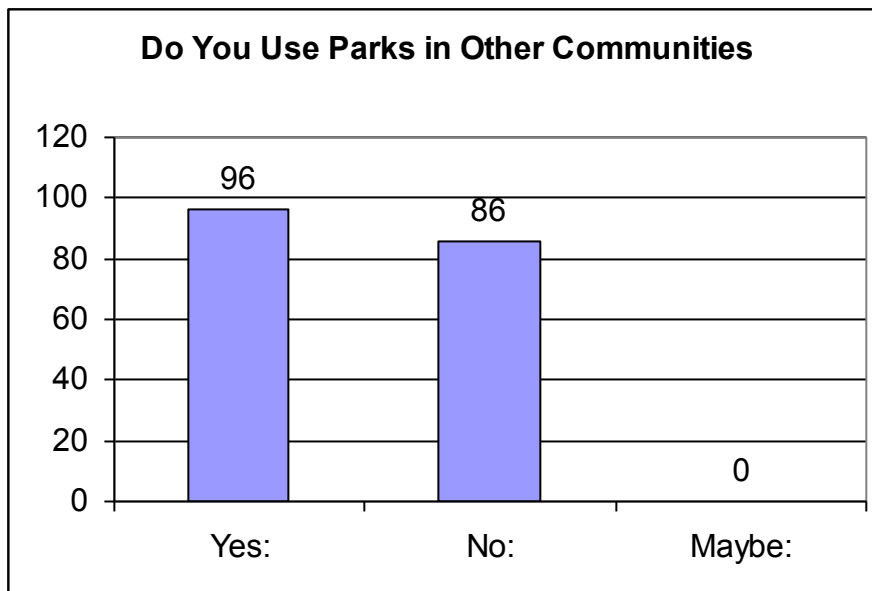
Q18: Would you use any recreational facilities in the Village if available?



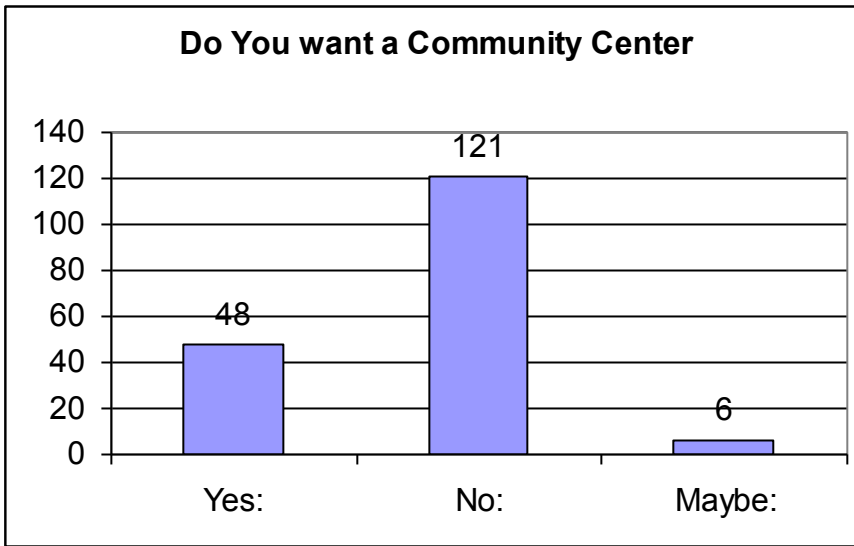
Q19: If yes what type of facility do you think you would use most often?



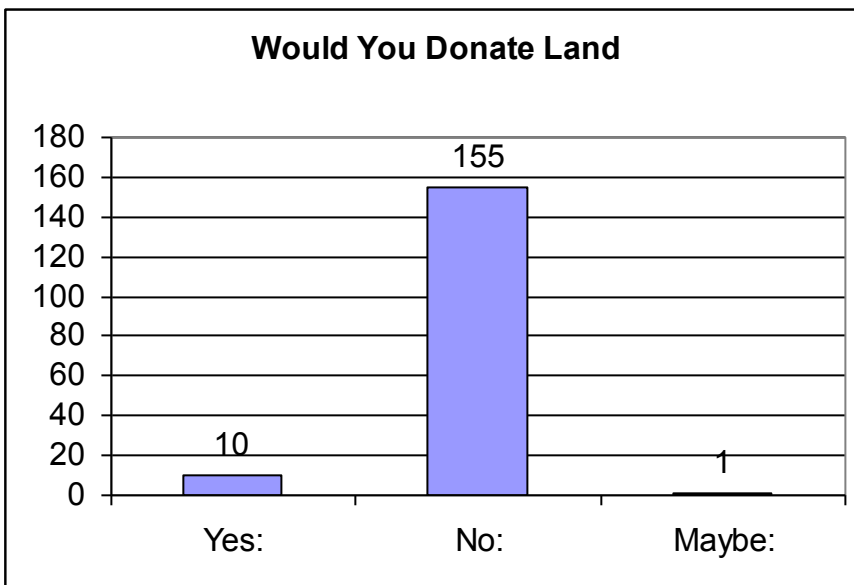
Q20: Do you currently use the public parks or facilities in the surrounding communities?



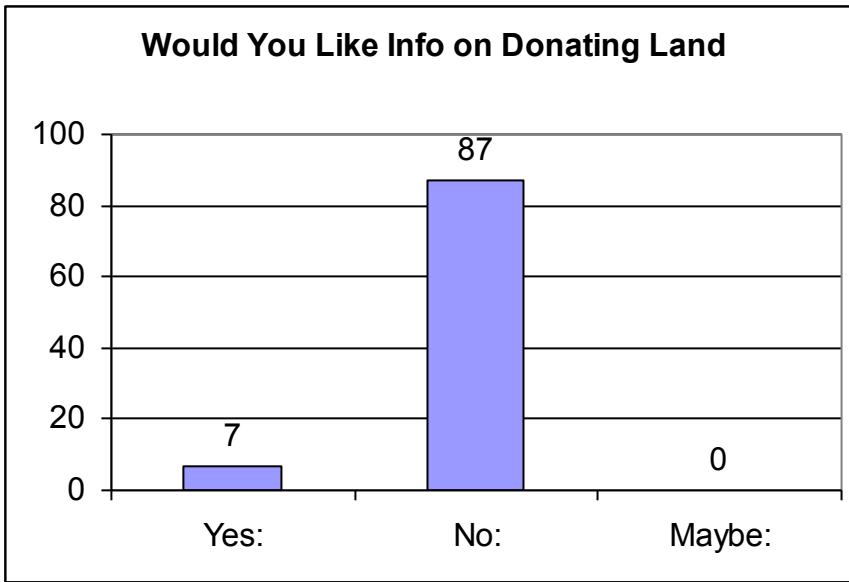
Q21: Would you like, and would you use, a community center in the Village?



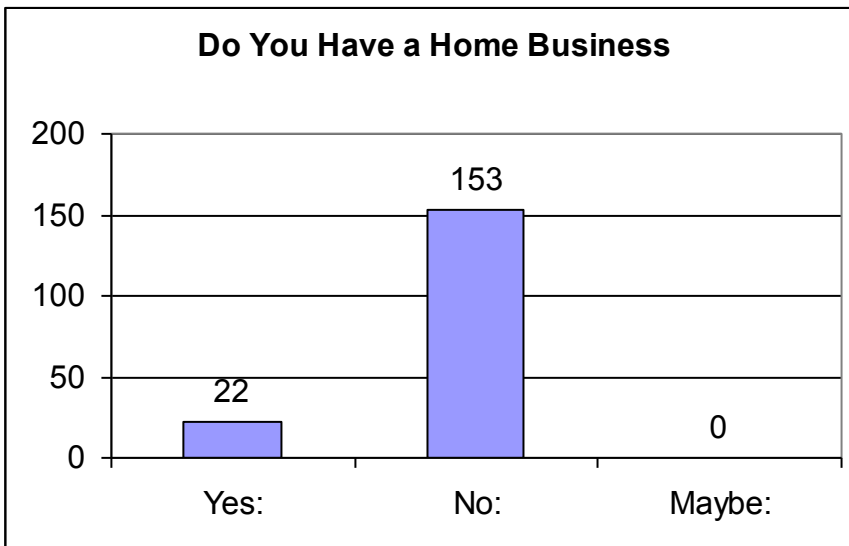
Q22: Would you consider donating a portion of your land to be used for conservation and/or park or recreational areas?



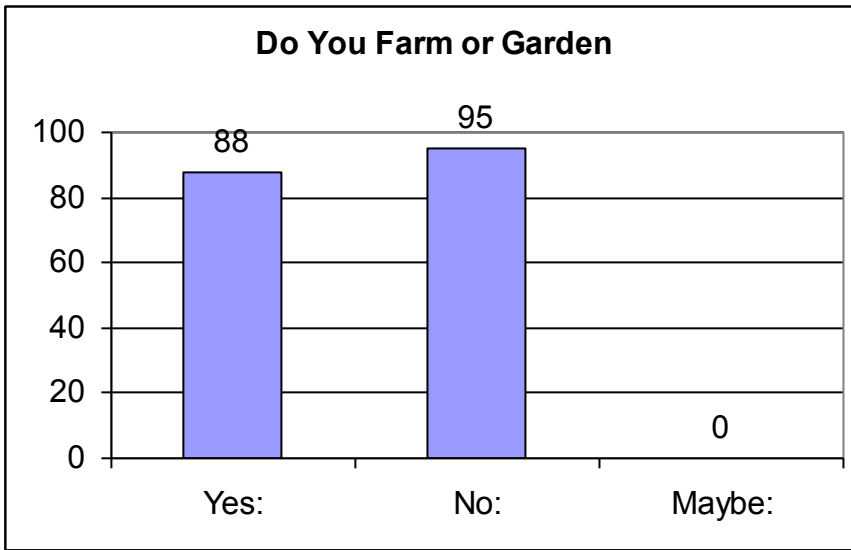
Q23: Would you like additional information on donating land to the Village?



Q24: Do you have a home based business?

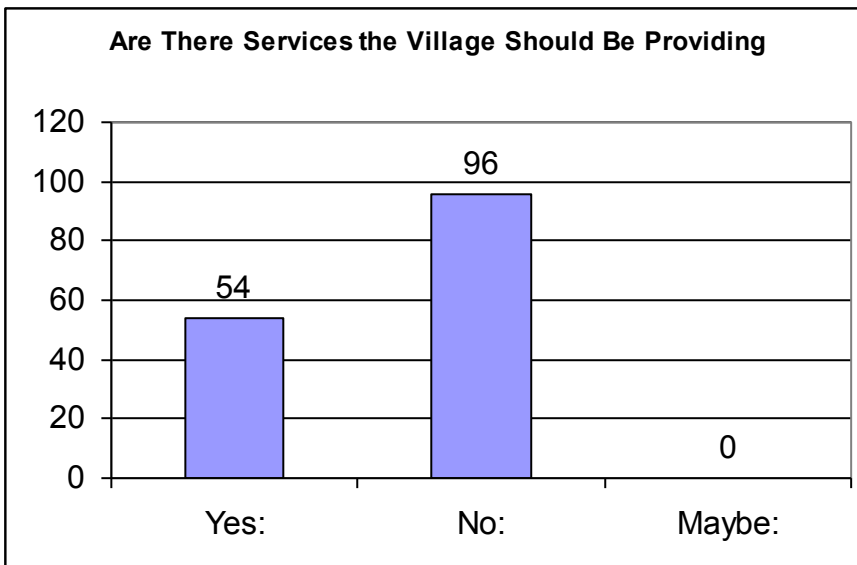


Q25: Do you farm or garden part or all of your property?

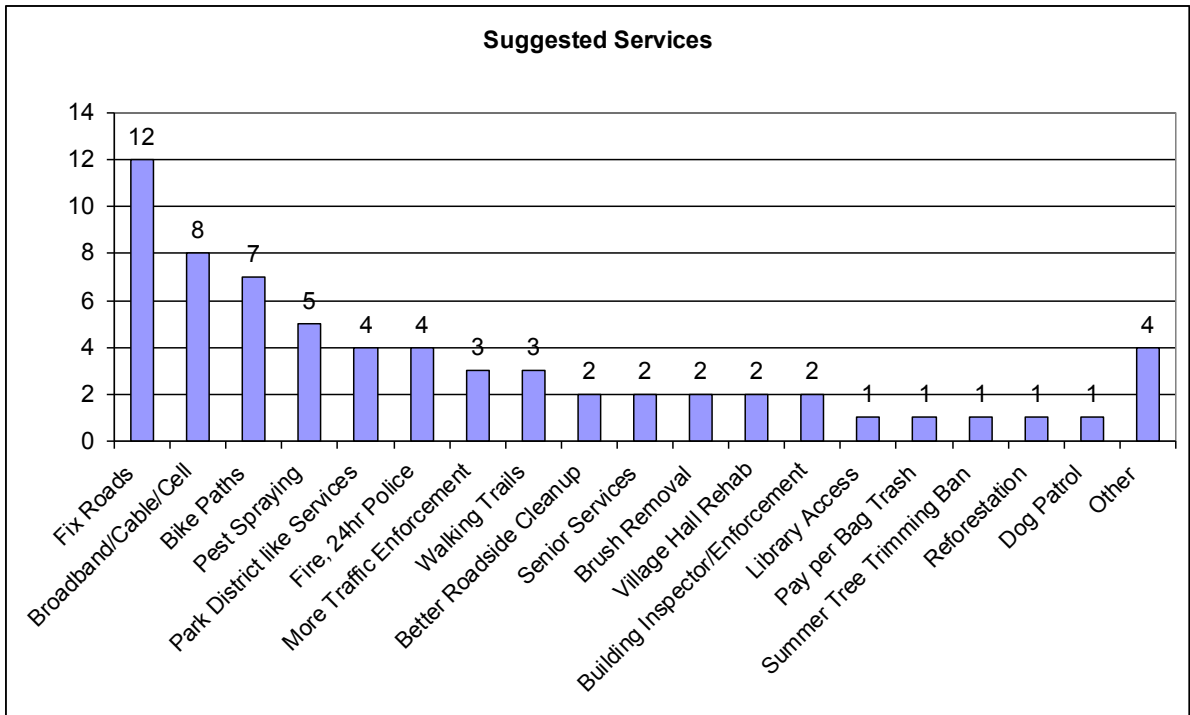


Q26A: Are there other services you believe the Village should be providing?

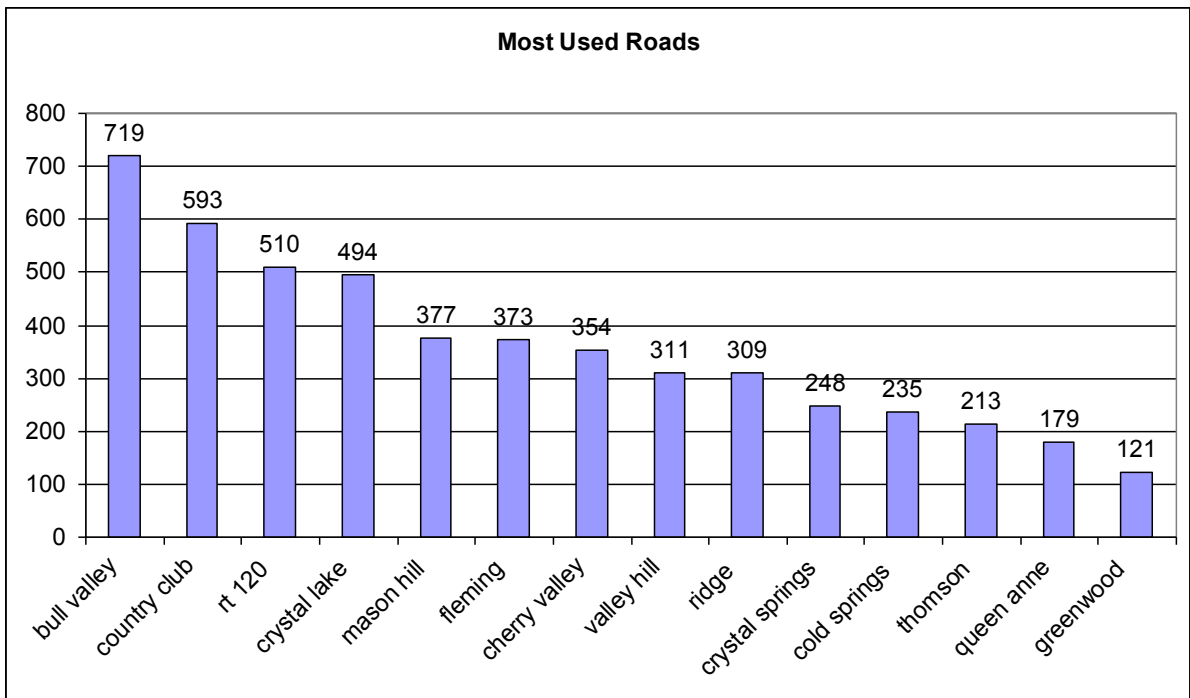
Please list:



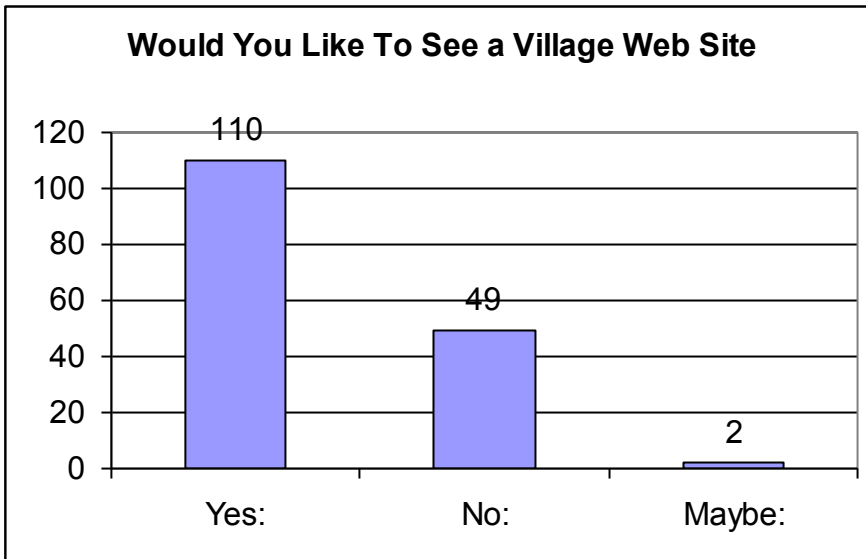
Q26B: What are those services?



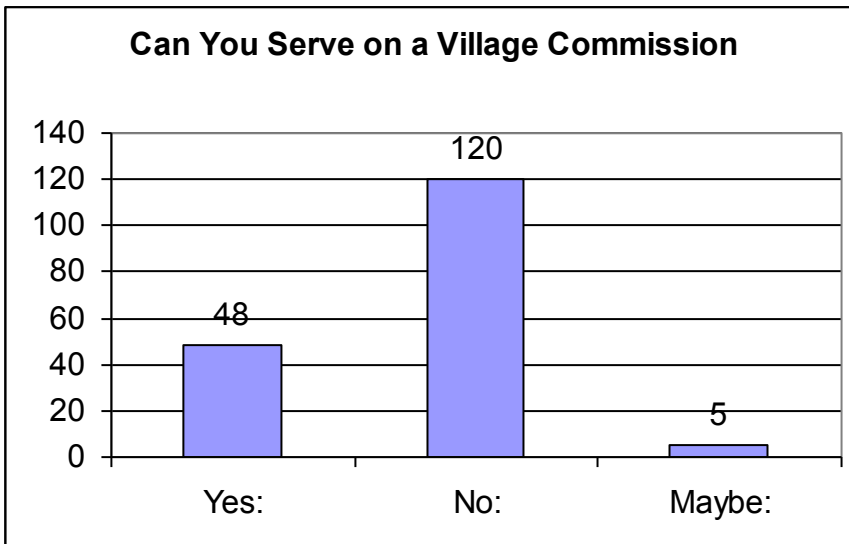
Q27: Please rank, from 0 to 5, each of the following roads by frequency of your use:



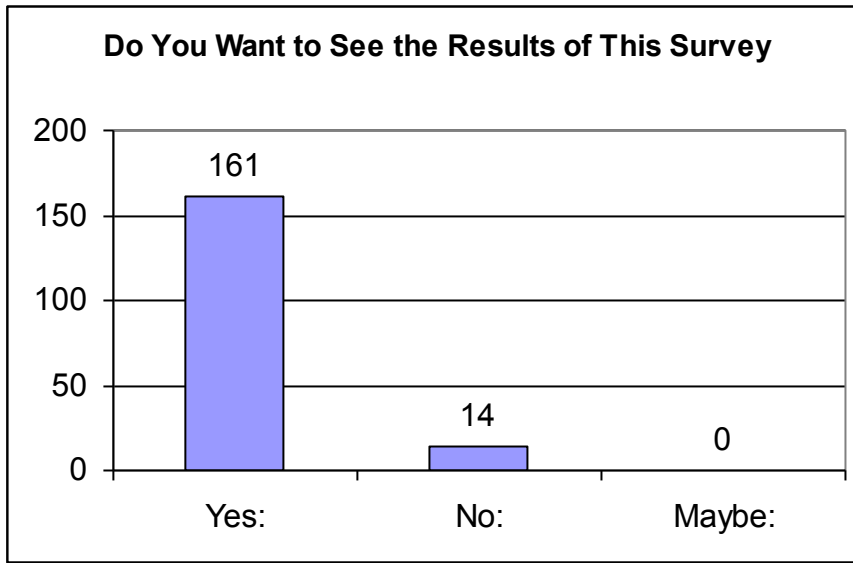
Q28: Would you like to see a village web site?



Q29: Are you willing/able to serve on a Village Commission or Committee?



Q30: Would you be interested in learning the results of this survey?



11/18/21