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SE450

APPLIED SYSTEMS DESIGN AND DECISION MAKING

SECTION C2

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Abstract

Team Macklin is evaluating how Suffern can maximize its political and economic independence. The problem is multi-faceted and complex, making it necessary to conduct an extensive amount of research not only to define the problem, but also to evaluate, create, and understand the different solutions. This research includes legal documents, tax records, and interviews with key figures, as well as individuals knowledgeable on the subject. Our methodology included literature research, stakeholder analysis, and value and mathematical modeling. The guiding factor we used to shape our methodology was the requirements and needs of our stakeholders. With their priorities in mind, we analyzed the current status and developed alternative solutions to help them enact a long term, sustainable future that met their goals.

Introduction

The issue of Suffern's government structure is significant because of how the current system is affecting the lives of Suffern's citizens. If Suffern cannot identify the driving issue behind its financial and political troubles, the standard of living for Suffern's population may see a steady decrease in the near future. The main issue with exploring potential solutions to satisfy the needs of the village is financial instability. The village accumulated enormous debt in recent years, and a significant portion of their additional expenditure is paying the Town of Ramapo. Team Macklin is actively defining and analyzing Suffern's current financial and political situation. The initial problem definition incorrectly revolved around the structure of government in order to meet stakeholders' initial needs. After our first interview, however, we realized the complications of their financial instability. Working with our literature research and initial interview, we managed to summarize Suffern's problem and begin creating solutions with a strict focus on finances.



Background

Currently, the local officials of the Village of Suffern are debating whether they should appeal to the New York State to make the transition from village to city, or a quasi-combination to best meet the needs of people in the surrounding area (Gregory). The Village of Suffern falls under the Town of Ramapo in Rockland County, New York as per the state legislature (Gregory). In order to become a city, however, the government needs to seek approval from the Town of Ramapo, and completely remove itself from the town's structure (Baynes & Porter, 1987). The town would likely be opposed the change because of the projected reduction in tax revenue (Gregory). Although the Village of Suffern already provides police services to its residents, and neighboring areas that remain unclaimed by other villages, the expanded budget for a city remains to be seen (Gregory). The village would have to provide social services including homeless shelters, homecare for the elderly, employment training, Medicaid, and drug and alcohol treatment centers (Savas, 2002). Such services are generally the largest county expenditures ((What do Local Governments Do?, n.d.). Unfortunately, the Village of Suffern is in more than \$5 million dollars in debt from egregious fund miscalculations, and deficits, in water and sewer services and non-tax revenue (Deyo, 2015). Nonetheless, the taxpayers' distrust in the Town of Ramapo and the Village officials' desire to best serve their constituents are driving factors in the structure change.

The legal documents and tax records were essential to giving a baseline for the problem and to provide a working knowledge of Suffern and the problem that it faced. This included the *New York Local Government Handbook* that provided information such as local tax information, the structure of each type of government, the different types of towns, villages, and cities, as well as contention points that might arise between a town and their villages (Cuomo, 2015, p. 65). In



addition to this broad understanding of the local governments in New York, this was supplemented with the *New York Village Laws* and *Town Law Manual* that dived more deeply into the more finite parts of being a village and a town. By having this framework for understanding, the group was then able to look at a report provided by the mayor of Suffern called *From Village to City: A Guide to New City Incorporation*. Written by Peter A. Baynes and Joseph B. Porter, two members of the New York State Conference of Mayors, this showed a previous assessment of the village to city transition that Suffern was trying to make. All of these documents, in addition to the public tax records analyzed, provided an excellent framework to understand the problem and structure a solution.

Methodology

Stakeholder Analysis

In order to identify the objectives, functions, and constraints of the system while also getting values from the decision makers, Team Macklin conducted a stakeholder analysis of. In addition to pure documents and records, we also conducted interviews with key stakeholders. This started with an interview with the Mayor of Suffern, Mr. Ed Markunas, as well as the deputy Mayor, Mr. Bob Morris. Both of these individuals helped by explaining their interest within the village itself and what they hoped to see within Team Macklin's project. They also provided people for us to contact to better understand the problem and gain more relevant data. This included Michael Genito, the treasurer of the village, who was incredibly useful in understand the financial inner workings and problems within the village.

Team Macklin first met with the Mayor of Suffern and the Deputy Mayor. From this first interaction with our key decision makers, Team Macklin was able to create an initial objective of exploring how the Village of Suffern would be affected by a change into a city government



Team Macklin: Project Suffern

structure. In addition to this, there was a significant amount of discussion with Mr. Morris and Mr. Markunas on the debt that Suffern had incurred and the financial mismanagement accusations against the Town of Ramapo that had many of the Suffern's citizens very concerned. Team Macklin was able to take these concerns and constrain our problem into looking how the change from a village would increase the political and financial independence of Suffern through five different value measures: number of services provided by Suffern, the sustainability of each option in years, the number of independent legislative decisions, the amount of revenue of each option, as well as the deficit that each option would incur.

After talking with Mr. Michael Genito, the treasurer for the Village of Suffern, Team Macklin was able to conduct a follow-up meeting with the mayor and deputy mayor to not only give them an update on the project, but also to ask for value measures from key stakeholders within the village. This was done by presenting both Mr. Morris and Mr. Markunas with a value measure sheet and asking them to assign values to the different value measures that were identified. In addition to both the mayor and deputy mayor completing the value measure sheet, trustee Hagan, trustee Russo, trustee Hertmen, and the village attorney also completed it. (Appendix A) This allowed for a more accurate value measuring by taking key stakeholders throughout the city and also getting their input.

Further stakeholder analysis was done with Mr. Michael Genito that provided valuable insight into the financial inner workings of Suffern as well as key areas to focus Team Macklin's efforts. In addition to this, with advice from Mr. Genito, Team Macklin also talked with the chief of police to identify his concerns with an expanded government and the feasibility of expanding services should Suffern become a city. Without getting a proper stakeholder analysis



that Team Macklin was able to do throughout all these meetings and engagements, the problem could not be correctly defined.

Functional Analysis

The purpose of conducting functional analysis is to identify the system functions necessary to complete all objectives set for Team Macklin. Team Macklin first did this through a functional hierarchy in order to identify the system's functions and sub functions. (Appendix B) For instance, inside the Village of Suffern, team Macklin identified that government, economic, and social structure encompassed the sub-functions of the system with legislative, utility services, tax revenue, village population, and emergency services falling under those sub functions. In addition to this, a system boundary diagram was made to show the relationship between the systems functions and sub-functions. (Appendix C) Both of these charts were validated with the key stakeholders and constantly referred to throughout the whole system's process.

Value Modeling

In order to quantitatively compare COA's, we needed to deduce value measures from the overall objective; to maximize political and economic freedom for the Village of Suffern. Through research and stakeholder analysis, we came up with 5 tangible measurements: Revenue, Deficit, Number of Services Provided, Years of Sustainability, and Number of Legislative decisions (Appendix D). We chose these value measures because they consist of data that can be obtained and/or projected as well as covering the political and economic nature of the project. Once we narrowed down our value measures, we sent our stakeholders a survey to rank the value measure in order of importance (Appendix A). We then took our stakeholder's rating scheme and



developed our swing weight matrix (Appendix E). We do this process in order to compare COA's based on the aspects that the stakeholder values most.

Idea Generation

Upon initial briefing of Suffern's current status, Team Macklin proceeded to brainstorm holistic, quantifiable ideas. We understood that we first needed to determine the advantages and disadvantages of remaining a village or transitioning into another form of political structure. The team determined the best course of action through value scoring based on sensitivity analysis. After meeting with the mayor and deputy mayor, however, we had to restructure our assessment of the circumstances surrounding the problem. Mr. Markunas and Mr. Morris expressed concerns about the financial and political well-being of their village given the estranged political relationship with the incorporating Town of Ramapo

Team Macklin conducted further investigation and analysis upon reading about the financial history of Suffern. In conducting our literature review, we came to the conclusion that we needed to develop solutions aimed at achieving a sustainable future for Suffern as opposed to the initial problem of transitioning into a city. Given that the stakeholder's primary concerns were financial and political, Team Macklin reframed the problem with the question: "How can Suffern maximize its financial and political independence?" The fundamental objective was to maximize the financial and political efficacy of Suffern, and we developed three overarching functions in a value model chart to support that end state (Appendix D). Through stakeholder analysis, Team Macklin realized that Suffern had to ensure its self-sufficiency and political effectiveness while maintaining a balanced budget in order to meet the aforementioned fundamental objectives.



During our literature review, we came across multiple documents describing town-village relationships in the state of New York. We realized that to ensure Suffern had the self-sufficiency necessary to remain financially and politically independent, Suffern had to meet the five objectives. To increase self-sufficiency, we assessed Suffern needed to minimize Ramapo's influence while maximizing the sustainability. Ramapo's influence was quantified with the number of internal services Suffern provided for its people; the more services Suffern could provide, the less the village would have to depend on Ramapo. Sustainability was simply measured by the number of years our proposed solution could remain in place. To increase political efficacy had the similar objectives: Suffern had to maximize its legislative autonomy, and gauged by the number of legislative decisions passed at the village level. According to Team Macklin's stakeholder analysis, Maintaining a balanced budget was the most important function of the three. Mr. Markunas and Mr. Morris, as well as Suffern's treasurer Mr. Genito, emphasized the staggering debt that Suffern had accrued. The mayor and deputy mayor stated: "If the financial issues between Ramapo and Suffern were resolved there wouldn't be much to complain about" meaning their financial situation was the primary point of contention" (Ed Markunas, interview). In order to achieve a balanced budget Team Macklin strove to assure that Suffern would maximize its generated revenue while minimize its projected deficits in any solution design. These functions, objectives, and value measures helped us shape our solutions and alternatives to unravel the redefined problem.

Alternative Generation

The alternatives Team Macklin initially generated were binary given the structure of the initial problem: "should the Village of Suffern remain a village, or transition into a city?" There were only two possible solutions, given the initial status. As previously discussed, the meeting



with stakeholders as well as further research allowed us to approach the problem with an expanded understanding, in greater detail. The value models previously discussed were the guidelines to our new solution generation process. We met the redefined fundamental objective by maximizing the five enveloped function and respective objectives. We created alternatives to maximize or minimize the value measure, contingent upon the specific objective.

The financial state of Suffern is currently unstable and we determined the best methods to rectify the situation. Suffern's treasurer, Mr. Genito, brought forth an important fact that served as the fundamental basis to how we would proceed. We learned that, in the state of New York, cities were the lowest level of government that could impose sales and income taxes. This is noteworthy because Suffern could generate a significant amount of revenue through such taxes. The alternative of transitioning Suffern was now financially viable.

Team Macklin addressed the harsh reality that Suffern's political relationship with the Town of Ramapo could create significant obstacles for a transition into a city. , Therefore, we developed additional alternatives where stabilizing the financial state of Suffern was our guiding factor. We had to look for other alternative methods to increase Suffern's revenue, which is how we arrived at expanding the current services provided by Suffern, and a hybrid solution between a village and a city.

Mr. Genito highlighted that Suffern's water and sewer systems already generated a significant amount of income. We determined Suffern could add more services for the people of Suffern to utilize, and increase the monthly rates paid by the villagers. Suffern already possessed the capabilities to provide many services, and we determined there were two primary services that would benefit the village. A tax assessor and overhauled animal control service would help Suffern generate that addition revenue in order to alleviate its financial stress. This would be the



simplest; it would not require Suffern to take on any additional people, would be low cost, and easy to implement.

Another solution we were looking at was for Suffern to turn into a hybrid government structure between a village and town. The plan would encompass Suffern absorbing all nearby settlements currently incorporated by the Town of Ramapo, without becoming a certified town. This will allow Suffern flexibility of generating revenue on a similar scale to a city, while allowing the village to retain its current political responsibilities.

Solution Enhancement

After Team Macklin generated alternatives, we reshaped the potential solutions to better coincide with the main purpose to maximize revenue and minimize expenditure. While the original alternatives reflected the purpose, we knew there were ways to improve our solutions. In assessing the status quo, we did not make any adjustments because the current status acted as our baseline solution. We did, however, use the baseline to brainstorm potential enhancements. The team re-evaluated our notes from the conference call with the treasurer, Mr. Genito, and made key distinctions.

The “Expanded Village Services Alternative” evaluated the costs associated with adding two services which would give Suffern more political autonomy from the Town of Ramapo. This was an improvement from our initial assessment which included considering all possible services that Suffern could offer in order to increase its political autonomy from the Town of Ramapo.

In the “Hybrid Alternative,” for example, we realized a way to improve the solution was by expanding the water and sewer services to all unincorporated areas surrounding the Village, as opposed to one or two areas. The nearby settlements included: Airmont, Hillburn, Montebello, and Sloatsburg which increased the population from 11,000 to 28,535. Since the median income



per household in those areas aligned well with Suffern's, we continued expanded our revenue and expenditure calculations to include the new population.

We improved the "City Alternative" by trying to accurately assess the potential revenue and expenditure the area could generate, as opposed to trying to assess what the appropriations and accrued debt the Village would take on if they were to make the transition. To make such calculations, we looked at the most recent fiscal year's income sheets for three cities: Beacon, Rye, and Yonkers. The median income per household between the three cities, was \$93,000. While this is higher than Suffern's median income per household, the cities' interests and abilities to tax their citizens is comparable to Suffern's capabilities. Therefore, we used a per person average using the cities' average of income and sales tax per person in order to estimate the amount of money we believed Suffern would accumulate given sales, income, property tax, in addition to sewer and water services.

Solution Scoring

Once we collected all of our raw data for every value measure and COA, we begin the solution scoring process. We start with making a Raw Data Matrix in excel (Appendix F). On another tab in excel, we set up value charts for each value measure (Appendix G). In these charts we assign a maximum and minimum raw data value to a value score of 100 to 0 respectively. By setting this spectrum for each value measure, we can give a normalized value between all value measures by using the "ValuePL" function in excel. This function assigns a value to the raw data point between 0 and 100 which makes it easier to compare otherwise unrelated measurements. Once we have all of the "ValuePL" scores, we multiply them by the weights of their corresponding value measure and add them up with the rest of the weight value measure scores to result in an overall score for the COA (Appendix H). From these overall scores we can



compare the stakeholder value between the COA's. We then organized the results into a stacked bar chart to show a visual comparison of solutions (Appendix H). After completing the solution scoring process, we concluded that the City solution was the highest valued COA for our stakeholder. We do this process to show a quantitative analysis of solutions in order to support our final recommendation.

Sensitivity Analysis

After scoring our solutions, we ran a sensitivity analysis on our highest and third highest weighted value measures. The reason we did not do the top two highest weighted is because they were directly correlated to each other and would have given us largely the same result. As a result, we tested the sensitivity of "Revenue from Services and Taxes" and "Services provided". To do this, we decided to test the overall solutions scores if we changed the given value measure's weight across a span of 40%. Our highest weighted value measure was given a weight value of 100, so for the sensitivity analysis we tested it down to a value of 60 in increments of 10 (Appendix I). Our third highest weighted value measure was given a weight of 70 so we tested it on a spectrum from 90 to 50 in increments of 10 (appendix I). After changing the weights accordingly, we recorded the resulting overall solution scores for each iteration in a simple chart for each value measure (Appendix I). From this chart we convert them into a 2-D line chart to show a visual representation a dominate solution (Appendix J). If at any point the top line intersects with another that would indicate the value measure being sensitive. However, after running the sensitivity analysis on the value measures, our model was proven not sensitive and our City solution still dominates the other COA's. The purpose of running the sensitivity analysis is to prove that the estimated weights of value measures will not change our final



recommendation if altered slightly. This gives us and our stakeholder more confidence in our model.

Value-Focused Thinking

In making our final recommendation, we used value-focused thinking to determine the best solution given our alternatives. We assigned values to each of the alternative's ability to meet the five objectives by using a combination of the raw data for each solution and the swing weights determined by the stakeholders (see Appendix E). When we added the values of the swing weights together, the total value was 340. Since this number does not allow us to scale the values appropriately, we calculated the measure, or global, weights based on each objectives. For example, although the swing weight of "Revenue from Services and Taxes" is 100, the global weight is 0.29. Essentially, 0.29 indicates that out of the total value for each alternative, "Revenue from Services and Taxes" contributes to 29% of each alternative's total score (see Appendix E).

We compared the five objectives to their respective quantitative value models called value functions (see Appendix D). For both revenue and deficit, we estimated that improving these functions would result in decreasing returns to scale. We determined that the ability to increase revenue and decrease expenditure results in lesser values with each increment because of the overarching implications associated with the ability to do so. For example, the ability to generate \$60,000,000 for one local government would be the best possible situation, however, it implied that the tax rate would likely be higher and the water and sewer services have capabilities to support more than 30,000 residents. The values associated with deficit had an inverse relationship. It was ideal to have -\$12,000,000 in a deficit, which means the expenditures



per person are far below the revenue. However, this means the budgets and qualities for public services are likely degraded. Therefore the deficit values produced decreasing returns to scale.

The value functions associated with services provided, independent political decisions, and sustainability resulted in linear returns to scale. The measurement types: years, public services, and political decisions are direct and natural. Direct meaning the measurements reflect the objective and natural, meaning we did not adjust the types to develop a scale (Parnell, Driscoll, & Henderson, 2011). We believed the value functions produced nearly equal returns to scale because the three value functions relied on more concentrated ranges. For example, independent political decisions used seven to sixteen political decisions in its overall scale.

After using Excel to assign values of the raw data based on the value functions, we multiplied the value by the swing weight (see Appendix F). From there, the values of the five functions were added to calculate a total value score. Based on the estimated value functions, and our calculations, the alternative with the highest score was the City Alternative.

Analysis of Results

“Hybrid” Solution

The hybrid solution has Suffern retaining its status as a village, but expanding services to neighboring unincorporated areas. The theory behind this is to increase tax revenue at a minimal cost to the village. This will allow Suffern to begin paying off their debt as well as spreading the financial burden across a larger population. An important consideration is that according to New York State Law, all land in New York must either fall under the governance of a city, town, or reservation. With regards to government structure, it would be illegal for Suffern to completely break away from Ramapo and form a structure that lies somewhere between a town and a village.



Expanded Village Solution

In the expanded village solution, Suffern remains a village but expands the number of services provided while fixing internal issues that are contributing to the overall problem of financial and political stress. When Team Macklin spoke to Suffern’s treasurer, he revealed that there was a tremendous point of contention regarding Suffern’s budgeting. Their expenditures more often than not exceeded their revenues, and they continually accumulate overwhelming debt and have not yet imposed any measures to cut spending or raise revenue. Mr. Genito, the treasurer, did mention that the town began issuing “town bonds” as a way to pay off immediate debt but this raised serious concerns. They are only able to pay off 1.4% of the debt every year, and with inflation and rising interest rates it seems that Suffern is only digging itself into a deeper hole (Genito, interview).

Finding a way to raise revenue would alleviate the symptoms of carrying heavy debt. As of 2016, 45% of a village’s revenues come from property tax, 39% from special activities, 11% from state and federal aid, and the remaining is attributed to local infrastructure charges. A village in the state of New York is not allowed to charge an income or sales tax so Suffern will have to optimize and reorganize its income system. Mr. Genito stated that Suffern’s water and sewer systems were strong candidates for future generation of revenue; if Suffern could somehow expand its public works and provide for the nearby settlements such as Sloatsburg or Hillburn, perhaps more money could be generated to cushion Suffern’s budget.

Decreasing or optimizing expenditures is just as, if not more important than increasing revenue when attempting to lower debt. Mr. Genito stated that Suffern frequently has issues with a bloated budget. The current budget manager will often factor in revenue streams that are not yet solidified, and proceed to spend money that Suffern hasn’t yet received. For example, in



2014 the village budget manager predicted that a building development would generate \$351,000 for the village. The budget manager proceeded to spend that money and didn't clearly document where the funds went; a few months later, Suffern cancelled the development and the funds never came to fruition. Because of this, another \$351,000 of accounts payable was added to Suffern's already significant debt.

City Solution

Our last proposed solution is also the most profitable solution. Suffern transitioning into a city will allow it to envelope local settlements and increase its population just like what the hybrid solution proposed, but would provide much more powerful tools for revenue generation. In the State of New York, the lowest level government structures that are allowed to impose income and sales tax on its citizens are cities. With the additional population and sales and income taxes, the newly crowned City of Suffern would be able to increase its revenue by almost to \$55 million, an additional 1100% from where it is currently standing. As a result, expenditures would increase as well given the large administration and service costs of providing for nearly triple the population, but the bottom line shows that potential revenue generated would be much greater than projected expenditures. Most importantly, this is the most sustainable course of action for Suffern, and will last for decades without any serious financial repercussion.

Conclusions

Through research and analysis, Team Macklin has successfully redefined Suffern's initial problem, generated alternatives to solve the redefined problem, identified and recommended the best course of action to the satisfaction of primary stakeholders. We have helped the mayor and deputy mayor of Suffern reevaluate the roots of their initial problem as financial and political



stress, and provided them with solutions that could sustain the village for the foreseeable future. Through stakeholder analysis and value modeling, Team Macklin recommends that the mayor and deputy mayor begin the process of transitioning Suffern into a city. The financial and political freedom that accompany the transition are exponentially greater than their current status. Becoming a city would alleviate a majority of the problems that the stakeholders are currently facing. A point to consider is the political ramifications of such an action; we anticipate that the incorporating Town of Ramapo will actively deny such legislation from the Village of Suffern, as it would greatly reduce their influence and power over the surrounding regions. To mitigate this risk, Suffern's stakeholders should present a detailed, structured plan to the state legislature their transition. The state legislature would be able to override any actions or litigations Ramapo may try to initiate, and help smooth the entire process.

Future Work

To better solidify our recommendation, Team Macklin would focus on further evaluations of the timeline required for such a transition as well as all of the administrative and financial cost, rather than relying primarily on modeling revenue and expenditure. Such analysis would allow the mayor and deputy mayor to inform the public regarding the expected timeline, general cost, and policy changes required to transition the village into a city. It would also provide the greatest amount of transparency to the taxpayers, as they would understand any projections to raise tax rates or the rates associated with water and sewer services to compensate for the debt the village would have to repay on the Town of Ramapo's behalf. Team Macklin can also study any legal precedence if Suffern meets significant resistance from the state legislature. Not only would this further mitigate any risk, but would also present a clearer timeline and step-by-step procedure for Suffern should they choose to proceed with this course of action.



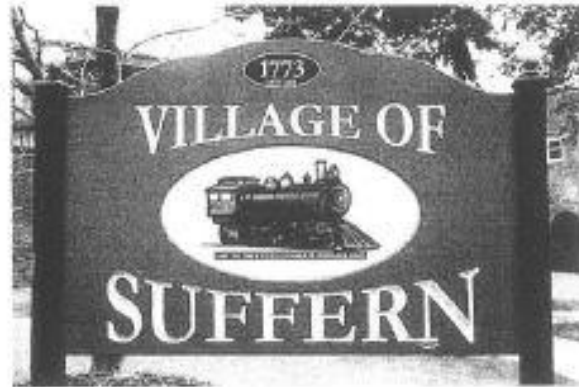
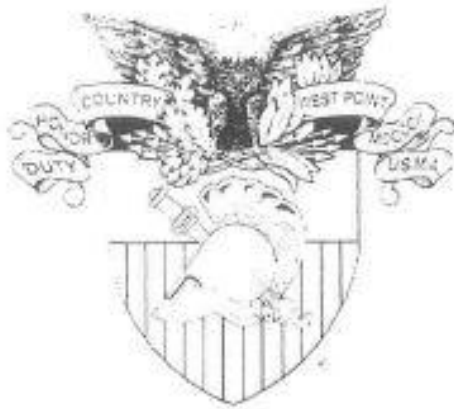
Appendices



Appendix A: Value Measuring Sheet

JAMES G. B. DELANEY
O. G. MACKLIN

OPERATION SUFFERN
TEAM MACKLIN



SURVEY SHEET

Figure 1.0: Value measuring cover sheet given to mayor



MAYOR

Instructions: Please rank the following value measures 1 (being the most valuable to you) and 5 (being the least valuable to you). In addition, please provide a rank of values with an optimal option and the minimum acceptable. An example is provided on the next page.

Value Measure	Unit	Definition
Number of Services Provided — 3	Number (#)	The number of services provided to Suffern by Ramapo. Should decrease as time progresses.
Number of Years — 5	Number of years (#)	The number of years the plan can be emplaced. The higher the number, the longer the sustainability.
Number of legislative decisions at the village level — 4	Number (#)	The number of decisions made in Suffern without external influence/interference. Should increase as time progresses.
Dollars (please read definition) — 1	Dollars in thousands (\$)	Amount of money saved due to fiscal efficiency. Higher is better.
Dollars — 2	Dollars in thousands (\$)	Amount of money saved due to reduced external taxation. Higher is better.

Figure 1.1: Value measuring for Mayor of Suffern



DEPUTY MAYOR

Instructions: Please rank the following value measures 1 (being the most valuable to you) and 5 (being the least valuable to you). In addition, please provide a rank of values with an optimal option and the minimum acceptable. An example is provided on the next page.

Value Measure	Unit	Definition
Number of Services Provided <u> </u> 5	Number (#)	The number of services provided to Suffern by Ramapo. Should decrease as time progresses.
Number of Years <u> </u> 4	Number of years (#)	The number of years the plan can be emplaced. The higher the number, the longer the sustainability.
Number of legislative decisions at the village level <u> </u> 3	Number (#)	The number of decisions made in Suffern without external influence/interference. Should increase as time progresses.
Dollars (please read definition) <u> </u> 2	Dollars in thousands (\$)	Amount of money saved due to fiscal efficiency. Higher is better.
Dollars <u> </u> 1	Dollars in thousands (\$)	Amount of money saved due to reduced external taxation. Higher is better.

Figure 1.2: Value measuring for Deputy Mayor of Suffern



VILLAGE ATTORNEY

Instructions: Please rank the following value measures 1 (being the most valuable to you) and 5 (being the least valuable to you). In addition, please provide a rank of values with an optimal option and the minimum acceptable. An example is provided on the next page.

Value Measure	Unit	Definition
Number of Services Provided __ 4	Number (#)	The number of services provided to Suffern by Ramapo. Should decrease as time progresses.
Number of Years __ 5	Number of years (#)	The number of years the plan can be emplaced. The higher the number, the longer the sustainability.
Number of legislative decisions at the village level __ 3	Number (#)	The number of decisions made in Suffern without external influence/interference. Should increase as time progresses.
Dollars (please read definition) __ 2	Dollars in thousands (\$)	Amount of money saved due to fiscal efficiency. Higher is better.
Dollars __ 1	Dollars in thousands (\$)	Amount of money saved due to reduced external taxation. Higher is better.

Figure 1.2: Value measuring for the village attorney



TRUSTEE HAGAN

Instructions: Please rank the following value measures 1 (being the most valuable to you) and 5 (being the least valuable to you). In addition, please provide a rank of values with an optimal option and the minimum acceptable. An example is provided on the next page.

Value Measure	Unit	Definition
Number of Services Provided — 2	Number (#)	The number of services provided to Suffern by Ramapo. Should decrease as time progresses.
Number of Years — 4	Number of years (#)	The number of years the plan can be emplaced. The higher the number, the longer the sustainability.
Number of legislative decisions at the village level — 5	Number (#)	The number of decisions made in Suffern without external influence/interference. Should increase as time progresses.
Dollars (please read definition) — 1	Dollars in thousands (\$)	Amount of money saved due to fiscal efficiency. Higher is better.
Dollars — 3	Dollars in thousands (\$)	Amount of money saved due to reduced external taxation. Higher is better.

Figure 1.4: Value measuring for Trustee Hagan



TRUSTEE RUSSO

Instructions: Please rank the following value measures 1 (being the most valuable to you) and 5 (being the least valuable to you). In addition, please provide a rank of values with an optimal option and the minimum acceptable. An example is provided on the next page.

Value Measure	Unit	Definition
Number of Services Provided __ 4	Number (#)	The number of services provided to Suffern by Ramapo. Should decrease as time progresses.
Number of Years __ 5	Number of years (#)	The number of years the plan can be emplaced. The higher the number, the longer the sustainability.
Number of legislative decisions at the village level __ 2	Number (#)	The number of decisions made in Suffern without external influence/interference. Should increase as time progresses.
Dollars (please read definition) __ 1	Dollars in thousands (\$)	Amount of money saved due to fiscal efficiency. Higher is better.
Dollars __ 3	Dollars in thousands (\$)	Amount of money saved due to reduced external taxation. Higher is better.

Figure 1.5: Value measuring for Trustee Russo



TRUSTEE HERTMAN

Instructions: Please rank the following value measures 1 (being the most valuable to you) and 5 (being the least valuable to you). In addition, please provide a rank of values with an optimal option and the minimum acceptable. An example is provided on the next page.

Value Measure	Unit	Definition
Number of Services Provided ___ 4	Number (#)	The number of services provided to Suffern by Ramapo. Should decrease as time progresses.
Number of Years ___ 5	Number of years (#)	The number of years the plan can be emplaced. The higher the number, the longer the sustainability.
Number of legislative decisions at the village level ___ 1	Number (#)	The number of decisions made in Suffern without external influence/interference. Should increase as time progresses.
Dollars (please read definition) ___ 2	Dollars in thousands (\$)	Amount of money saved due to fiscal efficiency. Higher is better.
Dollars ___ 3	Dollars in thousands (\$)	Amount of money saved due to reduced external taxation. Higher is better.

Figure 1.6: Value measure for Trustee Hertman



Appendix B: Spatial Arrangement

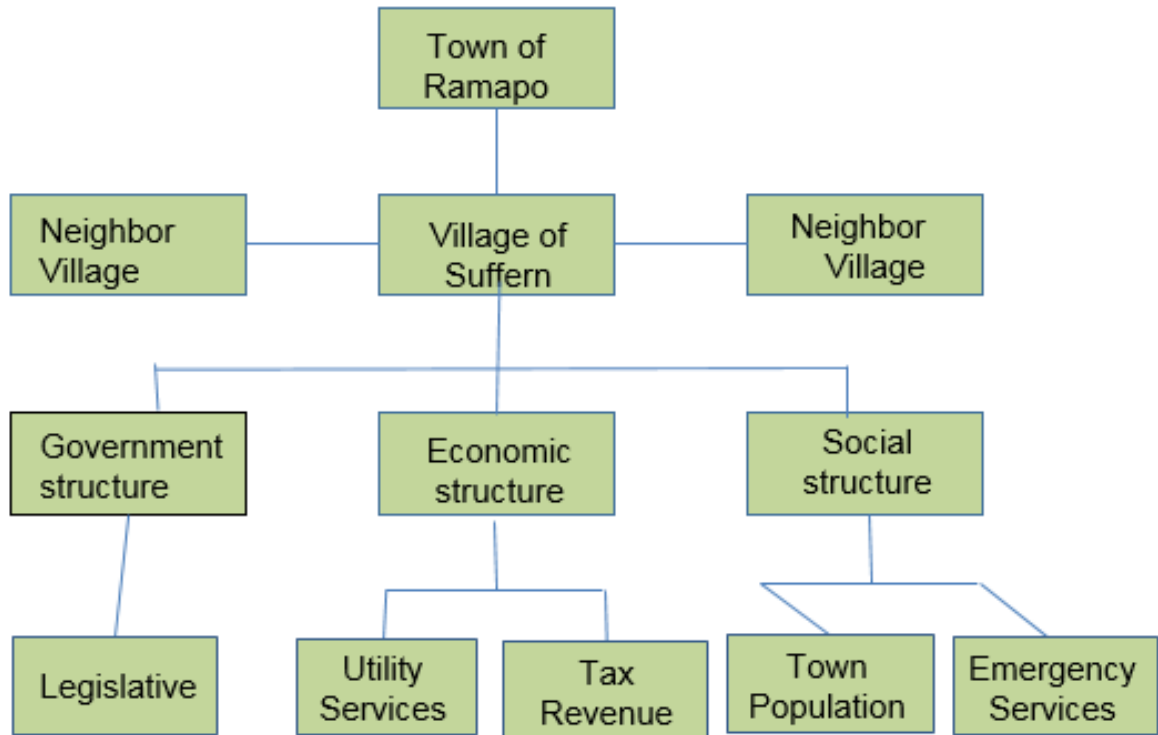


Table 1.0: Spatial arrangement for Suffern



Appendix C: System Boundary Diagram

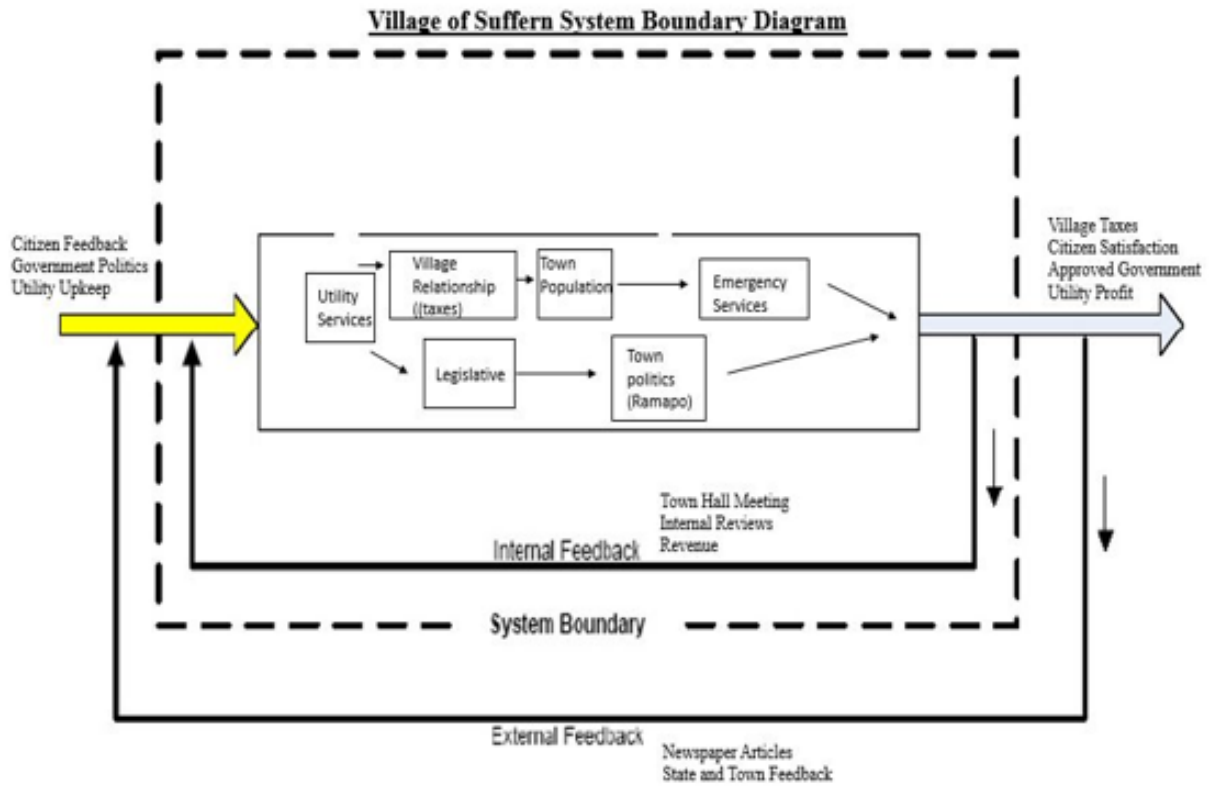


Figure 2.0: Suffern's system boundary diagram



Appendix D: Value Model

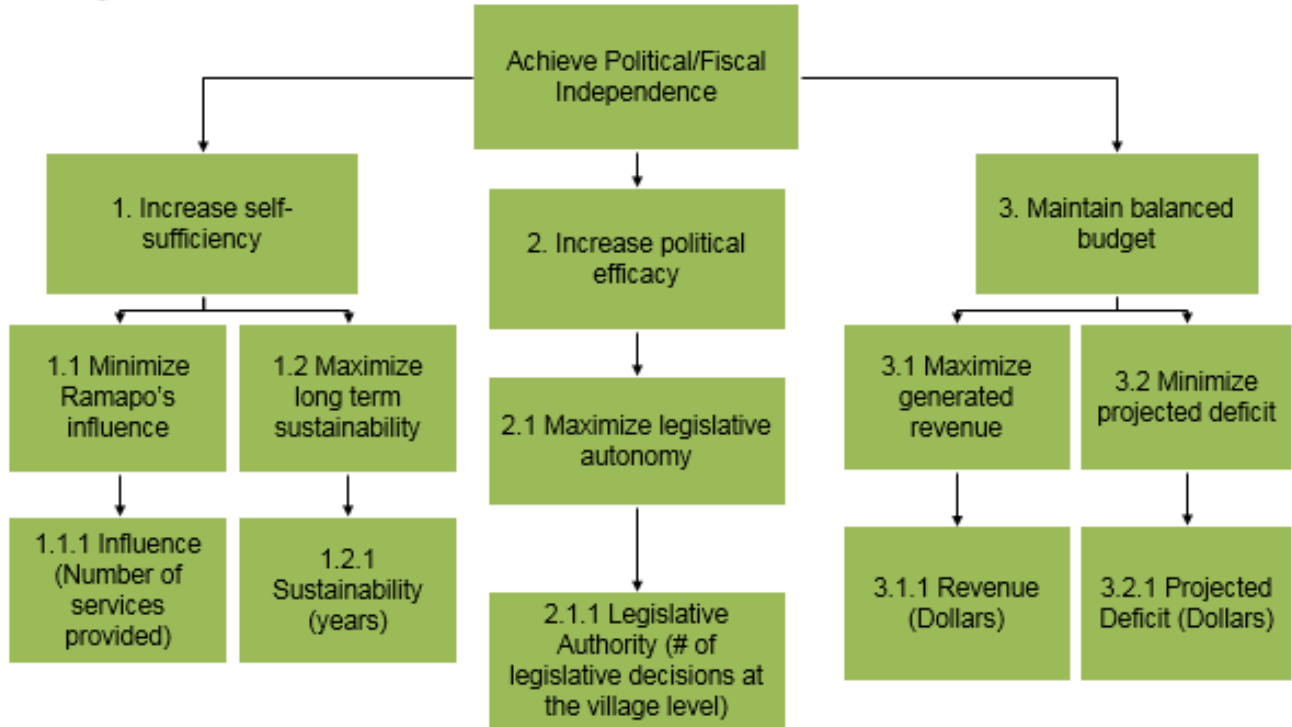


Table 2.0: Value modelling table for the Village of Suffern



Appendix E: Swing Weight Matrix

		Level of importance of the value measure		
		Very important	Important	Less Important
Variation in measure ranges	High	3.1.1 Revenue (\$) 100		
	Medium	3.2.1 Deficit (\$) 90	1.1.1 Services (#) 70	
	Low		2.1.1 Sustainability (#) 60	1.2.1 Number of legislative decisions (#) 30

Table 3.0: Swing weight matrix for different value measures



Appendix F: Raw Data Matrix

RAW DATA MATRIX					
	Revenue from Services and Taxes	Deficit	Services Provided	Sustainability (Years)	Local Level Legislation
Expanded Services	\$ 7,885,822.50	\$ 1,356,177.50	14	10	8
Hybrid	\$ 44,345,519.00	\$ 129,934.00	14	20	10
City	\$ 55,149,027.00	\$ (10,673,573.00)	18	50	16
Baseline	\$ 5,257,215.00	\$ 9,242,000.00	12	0	8
Ideal	\$ 60,000,000.00	\$ (12,000,000.00)	20	60	25

WEIGHTS						
	Revenue from Services and Taxes	Deficit	Services Provided	Sustainability (Years)	Local Level Legislation	Totals
Swing WT	100	90	70	50	30	340
Measure WT	0.29	0.26	0.21	0.15	0.09	1.00

Table 4.0: Raw data matrix along with weights



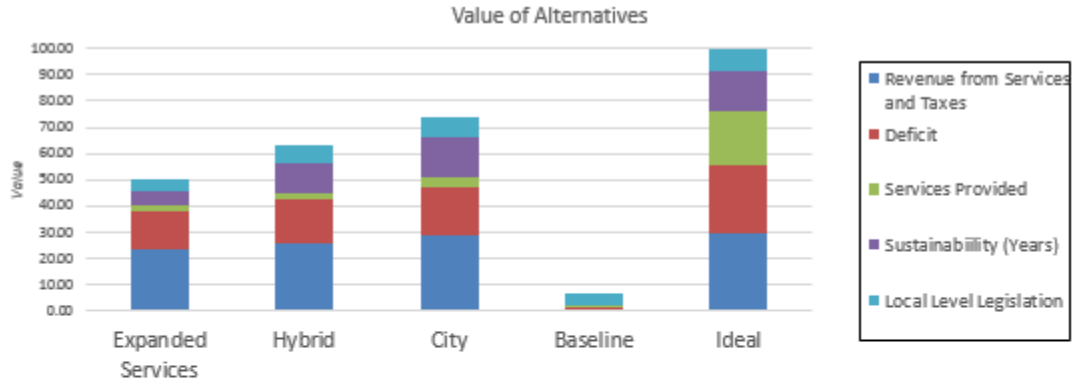
Appendix G: Total Value Scoring

Revenue from Services and Taxes		Deficit		Services Provided		Independent Political Decisions		Sustainability	
X	Value (Y)	X	Value (Y)	X	Value (Y)	X	Value (Y)	X	Value (Y)
\$ 5,200,000.00	0	\$ 15,000,000.00	0	10	0	5	0	0	0
\$ 10,000,000.00	25	\$ 5,000,000.00	50	12	50	8	50	5	20
\$ 45,000,000.00	75	\$ 1,000,000.00	80	14	80	10	80	20	80
\$ 60,000,000.00	100	\$ (3,000,000.00)	100	20	100	20	100	50	100

Table 5.0: Total value scoring matrix



Appendix H: Total Value Scoring Graph and Table



TOTAL VALUE SCORES						
	Revenue from Services and Taxes	Deficit	Services Provided	Sustainability (Years)	Local Level Legislation	Total Score
Expanded Services	23.69	14.30	2.06	5.88	4.41	50.34
Hybrid	26.10	16.47	2.06	11.76	7.06	63.46
City	28.52	18.65	4.12	14.71	8.12	74.11
Baseline	0.53	0.66	1.03	0.00	4.41	6.63
Ideal	29.41	26.47	20.59	14.71	8.82	100.00

Table 6.0: Total value scoring graphs and numerical chart



Appendix I: Sensitivity of Revenue from Services and Taxes

Sensitivity of Revenue from Services and Taxes

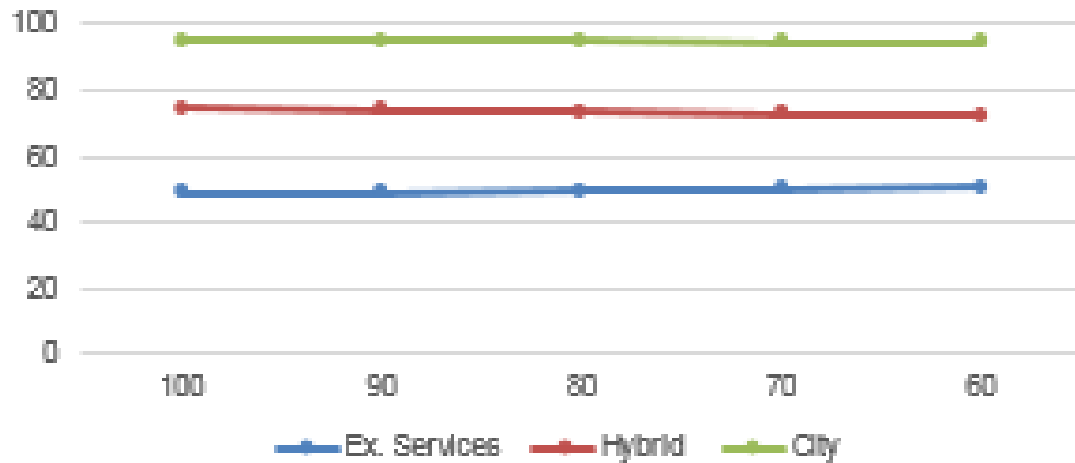


Table 7.0: Sensitivity of revenue from services and taxes

Sensitivity of Services Provided

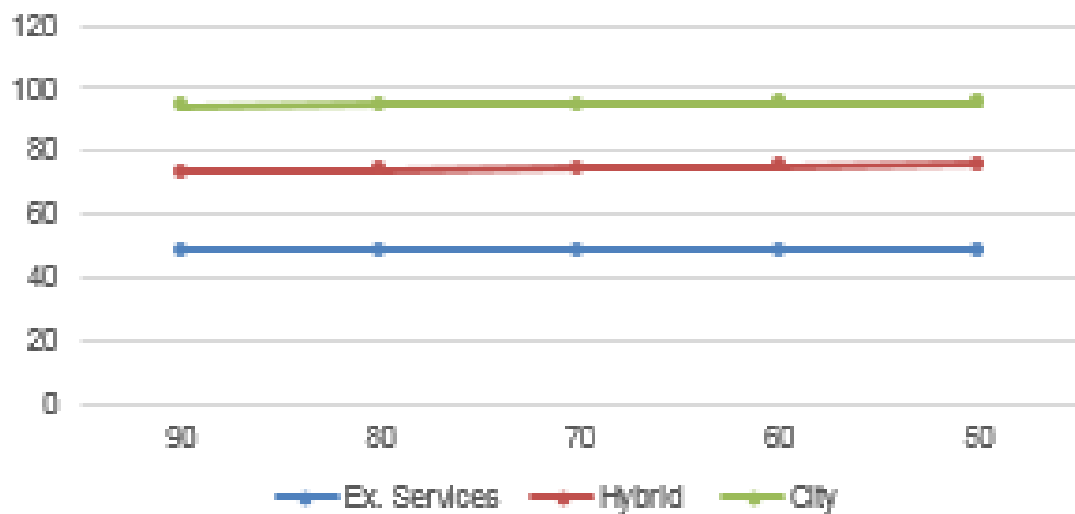


Table 7.1: Sensitivity of services provided



Appendix J: Value vs. Expenditure

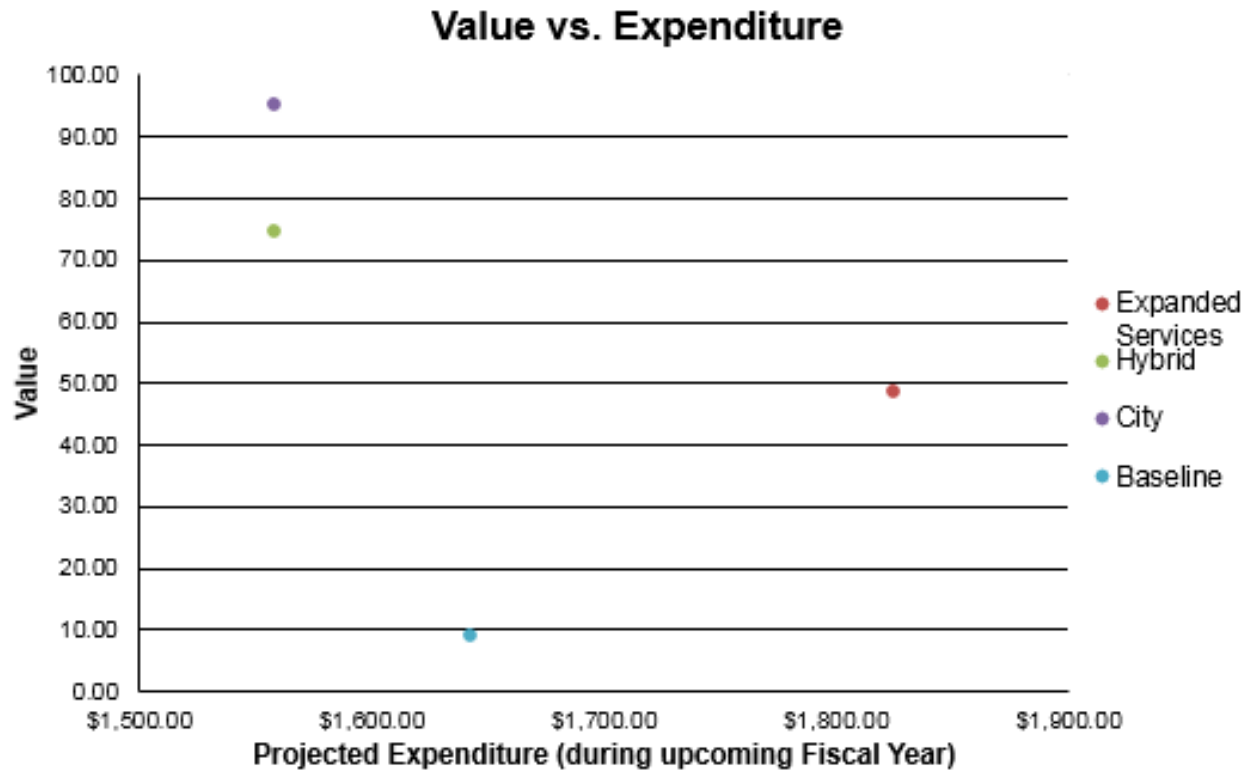


Table 8.0: Value vs. expenditure graph



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