ISSUE TEAM REPORT

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"LONG-TERM TREND ANALYSIS"

Prepared For Review By Executive Management Subcabinet

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Issue Title: "Long-Term Trend Analysis" Team Leader: Alan Robinette, State Planning Subcabinet: Executive Management

I. EXECUTIVE SUMMARY

Summary of the Issue

Minnesota state government is facing new challenges created by rapidly changing social, economic, and physical environments which give rise to rapidly changing issues. The lead time on issues is decreasing and the level of uncertainty is increasing. The problem is heightened by the increased visibility of government actions and the difficulty of altering policy directions.

Faced with this dilemma, it is important for the State to mobilize its foresight capability to provide decision-makers with as complete a vision of alternative futures as possible. The objective is to be prepared for future change and, if possible, affect it.

Long-term trend analysis is one of the important elements of a strategic planning process that is being widely adopted by state governments, corporations and other institutions. The elements of a strategic planning approach are:

- 1) External scanning identifies emerging issues through interpretation of current events, media reports, expert opinion, and public opinion;
- 2) Long-term trend analysis develops estimates, projections, or forecasts of future conditions based on past and present conditions and assumptions about causal factors in the future;
- Issue management is the mobilization of interests to define the issues, stakeholders, current strategy, and the impacts of alternative policy directions;
- 4) <u>Policy formulation</u> is the direction setting to fulfill a selected strategy that takes the form of administrative action, legislation, and/or resource allocation;
- 5) <u>Trend monitoring</u> is the continuous evaluation of conditions in response to policy decisions and in anticipation of adjustments to policies and programs.

This task force dealt only with long-term trend analysis realizing the relationship to other strategic planning elements. This topic also has considerable overlap with recent discussions of state economic monitoring and an economic research center. This paper attempts to summarize current state government activities in this area and recommend initial action that would consolidate these efforts. The ultimate plan may expand to a university/state government coalition and to a more formalized strategic planning process.

Major Findings

The central question addressed by this task force was "are the current long-term trend analysis activities providing sufficient information for decision-makers?" The answer is "yes, but in a fragmented and incomplete manner".

The task force identified nine activities that conduct regular, long-term (3 years or more) trend analysis. These nine activities from among the seven line agencies and four staff agencies on the task force are representative, if not inclusive, of the state's current effort. These activities are:

- 1) Economic Forecasting and Policy Simulation Models Dept. of Revenue
- 2) Minnesota Economic Forecasting State Economist, Dept. of Finance
- 3) Population Projections and Estimates State Planning Agency
- 4) Education Enrollment Projections Dept. of Education
- 5) Metro Area Travel Forecast Dept. of Transportation
- 6) Welfare Operations Analysis Dept. of Human Services
- Industry and Occupation Projections Dept. of Economic Security
- Unemployment Insurance (UI) Fund Projection Model Dept. of Economic Security
- 9) UI Fund Variable and Labor Force Forecasting Model Dept. of Economic Security

Conclusions

The nine long-term trend analysis activities indicate a considerable, although largely a program oriented, collection of activities within state departments. The general conclusion of the task force is that it is necessary to improve the coordination and collective effect of these activities as an initial stage of any large effort. The list of specific needed improvements are:

- 1) Increase awareness of current trend analysis activities through improved communication mechanisms to meet the needs of a variety of clientele.
- 2) Improve linkage between the technical trend capability and the issue management process.
- 3) Improve the translation of results of trend analysis.
- 4) Improve coordination among trend analysis activities.
- 5) Improve the commonality of base line data used in trend analysis.
- 6) Improve linkage between long-term trend analysis activities that forecast future conditions and the continuous trend monitoring that describe present conditions.
- 7) Improve the distinction between the quantitative trend analysis aspects and the interpretive policy impact analysis aspects of various activities.
- 8) Expand and enhance analysis capabilities.
- 9) Make the involvement of additional expertise and resources available to state agencies.
- 10) Develop a stronger identity and recognition for departmental activities and staff engaged in trend analysis.

Alternative Options

There are several implementation approaches that could deal with these needed improvements and move the State toward a more effective and informed management of trend information. The three options that were considered are:

- To continue the independent efforts with their program emphasis;
- 2) To coordinate the independent efforts and consolidate their results into an inter-departmental product; and

3) To study the feasibility of a major reorganization in trend analysis activities including a possible State of Minnesota and University of Minnesota coalition, economic monitoring through a research center, and formalization of strategic planning approaches.

Recommendation

The task force recommends option 2 as an important and necessary step in making the needed improvements and in moving toward a more comprehensive program. The primary mechanism for improving coordination, visibility, and use of results would be an executive branch biennial report that would consolidate the findings of departmental trend analysis activities. This would require an inter-departmental technical advisory group and staffing to consolidate trend analysis results. This option has the advantage of meeting the needs of both individual departmental programs and collective state management. There would be bi-products of this initiative which could address all of the needed improvements that are identified by this study.

Option 2 is a significantly increased level of activity in trend analysis in the State. The benefits of this activity includes a better picture of alternative future conditions for decision makers. Economic forecasts would reflect a more comprehensive look at the various implications of policies: taxes, jobs, entitlements, and capital expenditures. Although all of this information may be available now, an initiative such as that proposed here is necessary to consolidate and correlate the diversity of programmatic findings.

Budget Implications

The recommended option would require funding of \$200,000 for 1986-1987 and two (2) FTE positions. This level of funding with staff complement would address the consolidation effort and yield improvements or enhancements in departmental activities without the need for additional departmental resources.

Time Table for Implementation

It is recommended that a reconstituted task force continue as a technical advisory group to develop a more definitive plan of action upon approval of this report. This group would initiate a more formal working relationship among analysts in state government as well as draw upon expertise at the universities. Consolidation efforts would begin in FY86 with an initial report January 1, 1986.

II. BACKGROUND

History

Long-Term Trend Analysis is the regular forecasting or projection (not prediction) of conditions 3 years or more in the future based on current conditions, relationship among causal factors, and assumptions about change agents. Trend analysis attempts to simulate conditions in order to describe a range of alternate futures so that decision makers can intervene or prepare for change. Methods range in sophistication, complexity and reliability and usually involve mathematical models requiring computer analysis. Development of trend analysis activities in state departments and elsewhere has only recently evolved and is still in an early phase of its history. Such efforts represent considerable risk and require special expertise by professional and managerial staff. The technical nature of the subject tends to cause skepticism by decision-makers and managers.

Charge

The charge of this issue task force is to assess the State's capability for long-term trend analysis and to recommend needed improvement. The initial charge also included an assessment of public opinion gathering but the task force deferred that option due to the lack of formal activity in the state and the need for a different task force composition to deal with it.

Analysis Method

The fourteen member task force was composed of members representing seven line agencies and four staff agencies:

Alan Robinette, Team Leader	David Reed
State Planning Agency	DEED - Energy
Nancy Abraham	Jim Franczyk
Dept. of Administration	Dept. of Human Services
Charlie Bieleck	Joel Kvamme
Dept. of Finance	Dept. of Human Services
Steve Reckers	Michael Wold
State Planning Agency	Dept. of Economic Security
Michele Jimenez	Monte Aaker
State Planning Agency	Housing Finance Agency

Mike Mueller	Richard Stehr
Dept. of Education	Dept. of Transportation
Michael Koebnick	Dan Salomone
Dept. of Employee Relations	Dept. of Revenue

This group met six times over an eight month period to discuss the status and needs of trend analysis. Many of the representatives are directly involved in the development or use of trend results and represent much of the state agencies' expertise in this field.

After initial discussion of charge, task force role, and individual experience an inventory of trend analysis activities in the represented departments was developed. These activities were discussed and evaluated for compliance to qualifying criterias. General discussions followed regarding the collective deficiencies and needs of trend analysis in state agencies. The findings and recommendations in this report summarize the views of the task force.

III. FINDINGS

The inventory of the seven line agencies and four staff agencies on the task force identified nine trend analysis activities. These long-term activities are probably not all such activities in state agencies but are representative and cover broad programmatic topics. It is not likely that there are numerous other activities.

A summary of the objectives, methods, and results of these nine activities are as follows:

 Economic Forecasting and Policy Simulation Models - Dept. of Revenue, Research Section

This model package can be used to develop long-term (up to 10 years) forecasts of employment, personal income, consumer prices, and costs of production. These estimates are used in revenue forecasts of certain taxes and impact analysis of tax law changes. Models are available for analysis in areas of tourism, development, transportation, environment, energy, taxation, budget, welfare, and labor force. Some use is currently made by other state agencies.

2) Minnesota Economic Forecasting - Dept. of Finance, Economic Analysis Division

The State Economist develops a forecast of the Minnesota economy and major tax revenues for 2-5+ years into the future. National economic forecast data is related to a model of the Minnesota economy. The resulting forecasts of Minnesota specific variables are analyzed in preparing forecasts of consumer price indexes, employment by industry, and unemployment in order to forecast major state tax revenues.

3) Population Projections and Estimates - State Planning Agency, Office of the State Demographer

The Demographer prepares estimates and projections of population, households, median income, labor force, age, sex distributions, racial composition, urban, rural distribution, crime rates, and other characteristics. These estimates and projections are used by policy planners and budget analysts for program planning and in allocation formulas for funding.

4) Educational Enrollment Projections - Dept. of Education, Statistical Section

This activity projects enrollment (five years) at each grade level (K-12) for each school district (434). These estimates are provided to school districts, regional Education Cooperative Service Units, State Aids section, and other planning and interest groups. Eighty-five percent of school aids are paid to school districts on the basis of current year projections. A 15% adjustment and balance owed is paid in October of the school year following based upon actual enrollments (reported in July).

5) Metro Area Travel Forecast - Dept. of Transportation, Traffic and Commodity Studies

This activity prepares travel forecasts in the Twin Cities metropooitan area for other urban areas, over 50,000 in population, and commodity transport statewide. Federal requirements are to forecast traffic for a 20-year design life of a highway.

6) Welfare Operations Analysis - Dept. of Human Services, Bureau of Income Maintenance

This activity projects long-term (up to 5 years) levels of caseloads, costs, and issues associated with major programs of financial assistance and health care funding. This includes medical assistance, general assistance, and Minnesota supplemental aide. This newly initiated activity differs from the biennial forecasts so that new conceptualization, data building, and testing will continue to refine the models. 7) Industry and Occupational Projections - Dept. of Economic Security, Research and Statistical Services Office

This activity develops long-term (5-10 year) projections of industry and occupational employment for the state and metro area. A series of models have been linked to develop employment estimates for 201 industries and for approximately 500 occupations. Results are published in documents and technical material is available for other analysts.

8) Unemployment Insurance (UI) Fund Projection Model - Dept. of Economic Security, Research and Statistical Services Office

This activity projects tax rated benefit and revenue cash flows for unemployment insurance under different economic scenarios on a calendar year basis (normally for 10 years). It can also simulate proposed legislative changes and modification in the UI laws. Results from the model include projected wages, tax bases, tax revenue, benefit amounts, and fund balance. The model was developed to assist departmental administrators in assessing solving problems resulting from the 1974-75 recession.

9) UI Fund Variable and Labor Force Forecasting - Dept. of Economic Security, Research and Statistical Services Office

The activity develops and executes, forecasting models for economic "climate" (National GNP, interest rates, etc.) and wage and salary employment. The results of these models are input to the short-term UI Fund Forecast Model which is under further development to provide year ahead forecasts of UI cash flow.

Commentary on Trend Analysis Activities

These nine representative trend analysis activities represent high quality, technical efforts by well qualified agency staff. There is not a significant level of state funding available for work of this type and there has been almost no expenditure for coordination of these independent efforts. Continued support is needed to maintain this minimum level of trend analysis and additional support would amplify the benefits of this investment. There are some areas of duplication in data base development due to the isolated, programmatic nature of activities and lack of a forum to debate professional differences of opinion. This is less a reflection on individual activity managers than a commentary on the lack of collective visibility and support for trend analysis. Results from these activities do not receive widespread distribution. This is in part due to the technical nature of the results which could be overcome through translation of jargon into less technical terms. There is a general need for these trend analysis activities to relate more closely to the policy development process. This could also be overcome through a greater acceptance and request for foresight planning by the executive and legislative branches.

Conclusions - Needed Improvements

This assessment of the state's current capability for long-term trend analysis has inventoried individual, program related trend analysis activities in state departments but has focused comment on the collective state effort to coordinate and use the results of these activities in making critical decisions. The findings concentrate on common needs rather than individual agency (activity) needs.

There are ten areas of needed improvement:

- Increase awareness of current trend analysis activities through improved communication mechanisms to meet the needs of a variety of clientele:
 - a) Governor and Commissioners to demonstrate the value of trend analysis, to encourage foresight, and to bring into focus the implications of alternative futures.
 - b) Legislature to encourage and facilitate the testing of legislative initiatives and to extend the time line of consideration.
 - c) Staff to inform executive and legislative staff of resource people and data availability, to inform analysts of methodology, and to inform managers of results.
- 2) Improve linkage between the technical trend capability and the issue management process:
 - a) Familiarize managers dealing with the issue management process of available trend analysis programs, modeling capability, and activity results.
 - b) Familiarize analysts with the current and emerging issues among departments.
 - c) Develop a reporting mechanism for trends and issues that fosters anticipatory planning rather than crisis management.
- 3) Improve the translation of results of trend analysis:
 - a) Packaging interpret results for both the general and technical audience by reducing jargon, explaining process

in simple terms, and preparing executive summaries.

- b) Content relate results to issues and policy options to increase relevance and to clarify decision choices.
- 4) Improve coordination among trend analysis activities:
 - a) Assumptions develop a concensus or a limited number of options for the assumptions (e.g., national economic trends) that are used in models.
 - b) Data develop a common data set (e.g., unemployment rate) to be used or document variations used in order to improve credibility and interchangeability.
 - c) Models attempt to consolidate rather than proliferate the number and fragmentation of trend analysis models in the state.
 - d) Joint agreements attempt to cost-share subscriptions, leases, or purchases of methodology, and data acquisition.
- 5) Improve the commonality of base line data used in trend analysis:
 - a) Review trend activities and determine common data needs and schedules in order to share data (e.g., seasonally adjusted unemployment).
 - b) Reduce duplication of base line data development by striving for agreement on definitions and methods.
 - c) Distribute common base line data widely in printed form or through on-line retrieval to departmental analysts.
 - d) Reconcile which variables require a range of values in order to make high and low projections.
- 6) Improve linkage between long-term trend analysis activities that forecast future conditions and the continuous trend monitoring that describes present conditions:
 - a) Consolidate trend monitoring current reporting of many of the indicators of conditions suffers from being fragmented and inaccessible.
 - b) Visibility without systematic reporting of past and present trend indicators there is little appreciation and low expectation for the value of trend analysis.

- c) Computer facility fragmentation data fragmentation is exacerbated by the difficulty in communicating among multiple computer systems resulting in difficult data interchange.
- d) Lack of official status There is lack of concensus among professionals about the validity of statistical indicators and lack of a forum to resolve differences which results in duplication as well as confusión.
- 7) Improve the distinction between the quantitative trend analysis aspects and the interpretive policy impact analysis assessment aspects of various activities:
 - a) Trend Analysis heighten the understanding that trends represent "what is" and "what may happen".
 - b) Policy Impact heighten the understanding that policy impact analysis is an interpretation of how policy options may respond to or affect future trends.
 - c) Trend Extraction encourage analysts to separate trends from policy impacts so they can be used by other program managers.
- 8) Expand the enhance trend analysis capabilities:
 - a) New applications Trend models, such as those hosted by Revenue Research and recently used by Housing Finance Agency and Dept. of Energy and Economic Development could support many other applications with a minimum of adaptation.
 - b) New models There are numerous models used by other state governments and research organizations that could be adapted and applied to Minnesota.
 - c) Refinements There are enhancements that would improve the reliability and definition of trend identification that require the infusion of limited funding and staff resources.
- 9) Make additional expertise and resources available to state agencies:
 - a) Share capabilities Activities should not merely rely on their own division or department resources to undertake trend analysis activities.

- b) Mobilize university resources Additional effort should be made to identify and use expertise at Minnesota's universities.
- c) Benefit from private sector resources Additional effort should be made to identify and understand trend analysis activities of Minnesota corporations and institutions.
- 10) Develop a stronger identity and recognition for departmental activities and staff engaged in trend analysis:
 - a) Visibility enhance the perceived value of trend analysis through a greater exposure to professionals and elected officials.
 - b) Networking increase the interaction among analysts to improve communication and collective activity.
 - c) Relevance address topical issues in a timely manner to provide additional information to decision makers.

IV. ALTERNATIVE OPTIONS

There is a concensus among task force representatives that the current, independent pursuit of trend analysis makes an inadequate contribution to the State and is an under utilized resource. There are varying levels of expansion possible ranging from merely acknowledgment to major overhaul. These options can be represented by three distinct choices.

Option 1 - To continue the independent efforts with their program emphasis:

This option is a continuation of current activities to meet program needs but with the addition of some formal or informal communication among analysts and with managers. This represents a minimum time, cost, and change option and would yield only minimal additional benefits. It would not require much organizational or administrative effort from any lead group. It would acknowledge the independence of each program and involve voluntary changes in analytical work. This network has not developed significantly through current informal channels so it is assumed that some intervention or incentive is required to initiate this option.

Budget Implications	- No change level is required, however,
	some reallocation of departmental time
	would be required to promote sharing
	and coordination.

Support for Option 1 - The low profile, independent approach is buffered from political manipulation. A network of peers is in place and does not require administrative action.

- Opposition to Option 1-These informal networks are personality based and are easily broken with staff changes. This technique rarely leads to a naturally coordinated approach.
- <u>Option 2</u> To coordinate the independent efforts and consolidate their efforts in an inter-departmental product:

This option involves mobilization of collective efforts to address the needed improvements identified by the task force. It would involve an increased level of effort to develop an inter-departmental approach and to collaborate on a number of shared or common tasks in order to promote statewide objectives. This option would begin to address all of the needed improvements that were identified.

This option is an increased level of effort over the "status quo" represented in Option 1. This approach would acknowledge that individual trend analysis activities could be elements of an overall foresight program. The current activities are building blocks of such a statewide program but others would be identified and integrated as required. Option 2 is more than adding the existing nine activities together, it is consolidating both the base line data and the results into a coordinated forecasting effort for the State. In order to make this transition new funding resources are required.

Mechanisms that are recommended are:

 A biennial report consolidating the trend analysis results from departmental activities. This summary would be available continuously and published in January of even numbered years in preparation for the budget cycle.

This report would, as a background, capsulize the work of the nine trend analysis activities inventoried and others as identified. In addition, an effort would be made to give these individual efforts more meaning by relating their conclusions and commenting on their implications for policy development. Besides having the analysis results together, the total value will be more than the sum of the parts.

- A number of bi-products would be expected from this initiative including:
 - a) common definitions and base line data
 - b) forums for analysts and managers
 - c) technical documentation of departmental trend analysis activities
 - d) technical assistance among analysts

- Budget Implications This option would represent a change level of \$200,000 for 1986-87 since this is a new function and would require two new positions.
- Support for Option 2 The biennial report represents a focus for disparate activities and a magnet for departmental staff. The lack of coordination is more a result of program pressures than unwillingness to share. A product and forum represents an incentive for interaction.
- Opposition to Option 2 This option requires an institutional framework and facilitator to accomplish. Such a staff would have to gain the respect of the forecasting community which may require a revolving mobility assignment rather than new personnel. Departmental programs would have to accomodate these changes and allow staff to participate in collective activity.
- <u>Option 3</u> To study the feasibility of a major reorganization in trend analysis activities including a possible State of Minnesota and University of Minnesota coalition, economic monitoring through a research center, and formulating of stragegic planning approaches:

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This option is an endorsement for a significantly expanded trend program but recommends a study to establish the need and feasibility of a significant expansion in trend analysis. This approach could address related topics of economic monitoring and communication between economic computing facilities. Such a study could include a technical critique of current models, institutional frameworks, and use of trend information by decision makers.

- Budget Implications A one-time study could cost \$100,000 -\$300,000. The budget implications of major reorganization could be considerable depending upon the extent of study recommendations. A recent university proposal for economic monitoring totaled \$190,000 annually over current base funding of \$1.1 million.
 - Support for Option 3 This comprehensive, grand-design approach might result in more fundamental change over a shorter time span. The detachment of trend analysis from the executive branch would increase the apparent objectivity of trend results.

Opposition to Option 3 - Existing institutional compartmentalization represents both turf protection (negative) and reality-testing (positive) influence. There is a possibility that such a study would tend to centralize trend analysis or otherwise remove contact of analysts from program managers and thus diminish intended benefits.

V. RECOMMENDATIONS

Preferred Option

The task force recommends the pursuit of Option 2 - coordination and consolidation of results.

This option is viewed as an incremental approach that builds on the program oriented activity, represents minor institutional change, requires minimal budget/staffing increase, and advances the technical capacity at a rate that can be absorbed by the issue management/ decision framework.

Option 2 "Coordination and Consolidation" is favored over Option 1 "Status Quo" because the task force believes that new resources are necessary to extend these trend analysis activities beyond the current "program" focus. A biennial report would be an effective catalyst for meeting many of the needed improvements but this product is clearly beyond the scope of an interagency work group.

Option 2 is favored over Option 3 "Study of a Comprehensive Strategy" because it represents an initial, mandatory step in mobilizing the current cadre of state forecasting personnel. Proposals for a more comprehensive strategy could logically evolve from an activated advisory group.

Implementation Strategy

<u>Immediate Action</u> - A reconstituted task force could continue as a technical advisory group to maintain the momentum gained to date. Their activities might include the preparation of a more detailed plan of action and budget rationale. This peer group of departmental staff could draw upon expertise at the universities in their planning.

1986-87 -

- 1) Formalize technical advisory group.
- 2) Establish oversight group such as subcabinet, commissioners group, or other steering committee to set agenda and endorse the trend analysis activities.

- Staffing Establish staff to develop the consolidated trend report and to facilitate coordination and distribution of results.
- 4) Report In January, 1986 distribute the first issue of the trends results as a preview of the 1987-89 budget cycle.

VI. SUPPLEMENTAL MATERIALS

The nine trend analysis activities and four activities under development are described on a series of 10-page inventory forms and are available upon request. Contact Alan Robinette, (612) 296-1209.

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