

Master Ground Transportation Plan Study

Steering Committee

Implementation Plan

Phase I Projects

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1 Summary

Every business and household in Grand Cayman depends on a safe, efficient road network for the movement of goods and people. Transport by motor vehicle in the island has grown at a dramatic rate over the last 10 years. The Cayman Islands has the highest ratio of motor vehicles per capita and one of the lowest ratios of length of roadway per vehicle compared to all other countries of the world. This increase in motor vehicle traffic has surpassed the capacity of the island's road network and is now to the point of constraining economic growth and expansion.

To overcome this growing problem the Government is proposing to implement Phase One of the recommendations in a report entitled Master Ground Transportation Plan (MGTP). This entails the construction of approximately 4.8 miles of new road and associated intersections and traffic control improvements in the next four years.

It will be the largest single construction project ever undertaken by the Government of the Cayman Islands, both financially and administratively. The total project cost is estimated to be in excess of CI \$21.6 M (1987 dollars) and involves 101 tasks crossing the responsibilities of nine government departments. Because of the complex nature of the project, the urgency of the project and the inter-related dependency of one government department on another, the most pragmatic way of managing the project is to form a task force. The task force would be managed by a Project Administrator and would act as an executive branch of the MGTP Steering Committee. Ultimate accountability would be to the Portfolio of Communications, Works and Natural Resources.

A critical path method (CPM) analysis of the project illustrates that an efficient completion of the project is dependent upon the timely and effective cooperation of the nine government departments involved. This strengthens the argument for the proposed Task Force method of project management. Without such a management system, the project manager will have very little direct control over the key personnel responsible for completing the critical tasks. This may allow numerous delays to occur, severely hampering the progress of the project and thereby allowing the growing traffic congestion problem to restrain the economy of the Cayman Islands.

It is imperative that the project task force be organized immediately if the Government is to proceed with the implementation of the MGTP Phase One projects.

2 Introduction

The Government of the Cayman Islands is desirous of constructing approximately 3.6 miles of 2-lane primary arterial highway, approximately 1.2 miles of 2-lane collector road and associated intersections and intersection improvements in the island of Grand Cayman, Cayman Islands, British West Indies.

These road construction projects are known as the Phase One projects of a comprehensive ground transportation improvements project recommended by Wilbur Smith Associates in association with David Lashley & Partners and Robertson Ward Associates in a report to the Government of the Cayman Islands, entitled Master Ground Transportation Plan - 1988 (MGTP). The report's recommendations were categorized into

- 1) Immediate Action Projects,
- 2) Phase One Projects, and
- 3) Phase Two Projects.

Presently, three out of seven of the Immediate Action Projects have been constructed or are near completion, detailed design plans are completed for one more, and money has been allocated for the land acquisition component of another in this year's budget. Government is taking the first major step toward preserving the corridors of the Phase One and Phase Two projects by amending the Development Plan, 1977 to include a set of "Prescribed Composite Maps". These maps identify at a scale of 1:2500 the proposed alignments of all physical road construction projects recommended by the MGTP. It is likely that this amendment to the Development Plan, 1977 will initiate some claims for compensation by landowners that may be blighted or severely restricted from developing their land due to the new road schemes. In anticipation of this Government has allocated CI \$1.5 M in this year's budget for such claims.

In order to implement the Phase One projects as quickly as possible, the MGTP Steering Committee prepared a Draft Financial Plan for the implementation of the Phase One MGTP projects. This document was discussed with Executive Council in January, 1989. It was decided that further financial analysis should be carried out with a view of determining the feasibility of constructing Phase One and Phase Two simultaneously. This work has been completed by the Economic Development Unit and was presented to the Elected Members of Executive Council on 17 May, 1989. Members accepted that implementation of Phases I & II simultaneously could not be economically justified. In addition, Members undertook to re-examine the previously mentioned Draft Financial Plan for Phase I only, after the May meeting of the Legislative Assembly.

3 Structure of a Task Force

3.1 Scope

The implementation of the MGTP Phase One projects will be the largest single construction project ever undertaken by the Government of the Cayman Islands, both financially and administratively. The draft Financial Plan estimates the total project cost to be in excess of CI \$21.6 M (1987 dollars). The project has been divided into 101 tasks and involves nine government departments. As the project develops, more government departments will probably be involved such as Government Central Funding Scheme for equipment management and maintenance and the Royal Cayman Islands Police Force regarding traffic control devices. A complete listing of the 101 tasks is given in Section 12.2 of this document.

The 101 tasks have been grouped into nine basic task groups and the corresponding lead government departments have been assigned the responsibility of completing the tasks within their basic task group as follows:

<u>BASIC TASK GROUP</u>	<u>LEAD GOVERNMENT DEPARTMENT</u>
1. FINANCE AND FUNDING	FINANCE
2. PROJECT MANAGEMENT	PWD
3. DESIGN	PWD
4. SURVEYING - MAPPING	LANDS & SURVEY
5. LAND ACQUISITION (UNDEVELOPED LAND)	LANDS & SURVEY - LEGAL
6. LAND ACQUISITION (DEVELOPED LAND)	SOCIAL SERVICES - LEGAL
7. RE-ZONING	PLANNING
8. TENDER - CONSTRUCTION	PWD
9. ENVIRONMENTAL IMPACT ASSESSMENT	NAT. RES. LAB/MRCU
10. PUBLIC RELATIONS	G.I.S.

Because of the complex nature of the project, the urgency of the project and the inter-related dependency of one government department on another, the most pragmatic way of managing the project would be to form a task force. The executive personnel that would form the "core" of the Task Force would be recruited from within the Civil Service where possible and supplemented by others from the local private business sector. It is imperative that these people be insulated from their normal daily duties and under the direct and absolute control of the Project Administrator of the Task Force. Other personnel that are obtained from either local or overseas consulting firms (e.g. the survey teams or the land valuation people) would be the direct responsibility of one of the executive personnel on the Task Force. This will ensure that the consultants are managed by someone who is familiar with the local environment and the local people and who can deal with the concerns of those impacted by the project with empathy. This arrangement will also ensure that

locally-serving officers are given the fullest opportunity to be involved in, and gain the experience from, a project of the magnitude.

At the same time, it is appreciated that few if any departments will consider themselves able to release serving officers to such a Task Force., unless replacements can be made available. This is realistic and presumed. What is important, however, is that the relevant heads of departments be given the authority to:

- i) specify the type of replacements needed, and
- ii) pursue directly the identification of suitable persons.

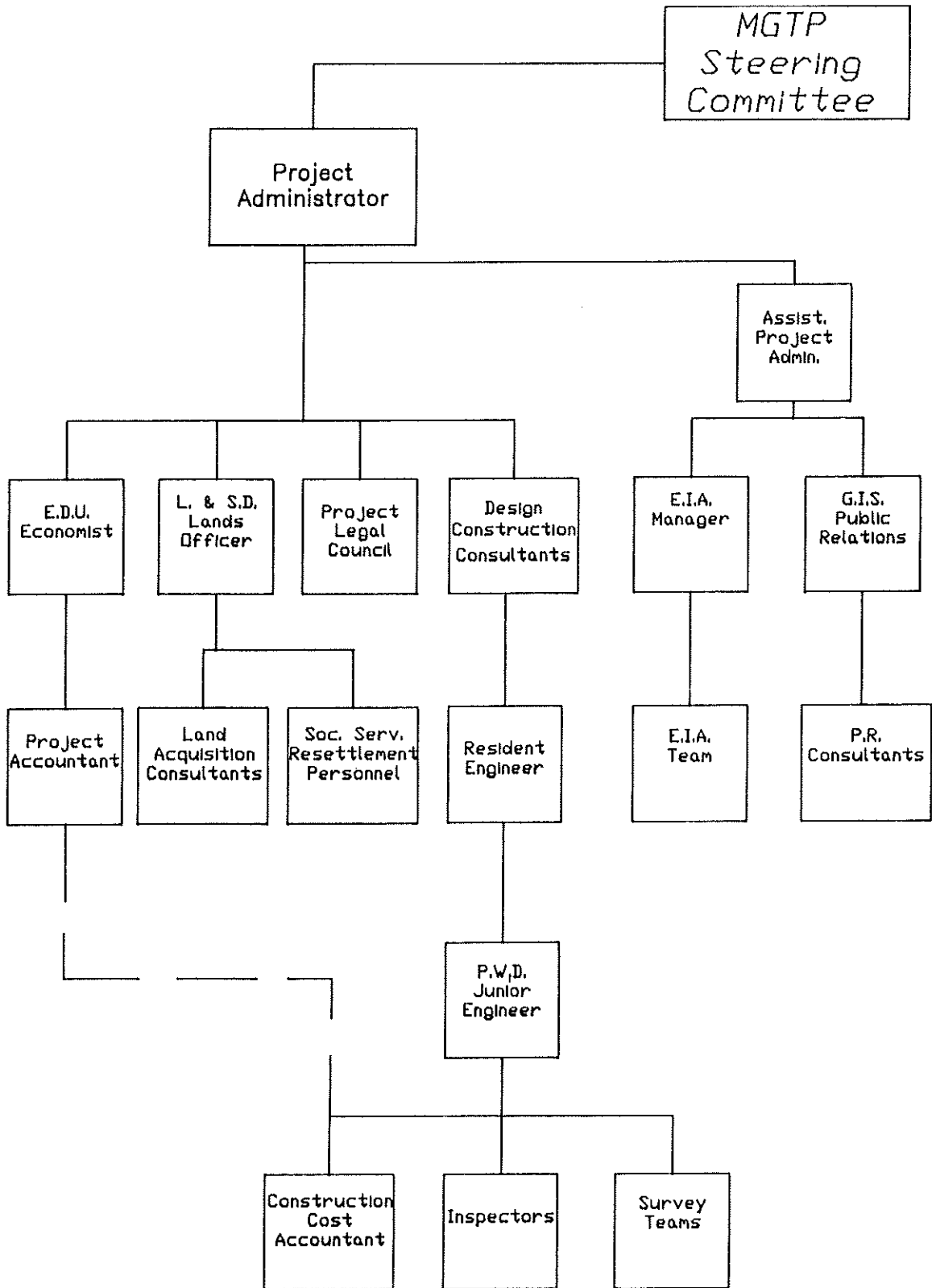
Such persons would be engaged either against supernumerary posts or by formal agreement (with an agency of another government or professional firm) for set durations. The cost of these temporary replacements should be reimbursable from the MGTP project.

3.2 Summary of Manpower

Basic Task/Personnel	Civil Service Consultant	Total Man Months	Monthly Cost	Total Cost
<u>Finance and Funding</u>				
EDU Economist	Civil Service	6	2,500	15,000
Project Accountant	?	54	2,000	108,000
<u>Project Management</u>				
Project Administrator	?	54	4,200	226,800
Assistant Project Administrator	Civil Service	54	2,500	135,000
Project Legal Council	Civil Service	8	2,500	20,000
<u>Design</u>				
Design Manager (+Const. R.E.)	Consultant	32	8,000	256,000
Senior Design Engineer	Consultant	6	7,000	42,000
Design Engineer	Consultant	6	6,000	36,000
Technicians (2)	Consultant	12	5,000	60,000
PWD Resident Engineer	Civil Service	30	2,500	75,000
PWD Junior Engineer	Civil Service	30	2,000	60,000
<u>Survey and Mapping</u>				
Survey Teams (2)	?	48	6,000	288,000
Office Technicians (2)	?	48	1,500	72,000
<u>Land Acquisition (Undeveloped Lands)</u>				
Senior Valuer/Manager	Consultant	24	8,000	192,000
Senior Assistant Valuer	Consultant	24	6,000	144,000
Assistant Valuer	Consultant	24	5,000	120,000
LSD Lands Officer	Civil Service	24	2,500	60,000
<u>Land Acquisition (Developed Lands)</u>				
Soc. Serv. Officer (2)	Civil Service	36	2,500	90,000
Planning Officer (Land Valuers & Officers included above)	Civil Service	6	2,500	15,000
<u>Rezoning</u>				
Consultant Team	Consultant	30	5,000	150,000
<u>Contract Management</u>				
PWD Resident Engineer	Civil Service	24	3,000	72,000
Construction Accountant	?	24	1,500	36,000
PWD Junior Engineer	Civil Service	24	2,000	48,000
Inspector (3)	Civil Service	72	1,500	108,000
<u>Environmental Impact Analysis</u>				
EIA Manager	Consultant	12	8,000	96,000
Senior Environmentalists (2)	Consultant	24	5,000	120,000
Field Staff (4)	Civil Service	24	2,500	60,000
PWD Resident Engineer	Civil Service	0	n/a	
Planning Officer	Civil Service	6	2,500	15,000
<u>Public Relations</u>				
GIS Senior Officer	Civil Service	27	3,000	81,000
<u>Support Staff</u>				
Secretaries (2)	Civil Service	108	1,500	162,000
Clerical (2)	Civil Service	108	1,500	162,000
Totals	37	1009	115,200	3,124,800

This can be related to a total project administration cost of CI \$5.5 M using a factor of 1.75.

3.3 Task Force Organizational Chart



4 Project Management

This unit will form the top level management of the task force. The unit should consist of the following:-

Project Administrator,
Assistant Project Administrator,
Project Legal Council.

The key person in the project, the Project Administrator, should be familiar with the Cayman Islands and the workings of the Government. He should be capable of managing a large technical staff and possess good communication skills. Initial responsibilities will include recruiting the members of the task force, identifying office space requirements and formulating an administration budget.

5 Finance and Funding

The Economic Development Unit and the MGTP Steering Committee have already laid the ground work of a financing strategy for the project. In a report entitled Financial Plan for the Implementation of the Phase I Projects of the Master Ground Transportation Study the expected total project costs were developed and suggestions as to how Government might pay for the projects were given. This financial plan now needs to be finalized to the satisfaction of the Government so that the project may proceed. To do so will require the efforts of the Project Management personnel, a Staff member from the Economic Development Unit and a Project Accountant. The latter two of these will form the Finance and Funding unit for the project.

They will initially be responsible for working with the Government Portfolio of Finance and Development to finalize the Financial Plan. The Financial Plan should contain realistic cash flow projections based on revised construction, administration and financing costs. It should also contain politically acceptable and rational proposals (financial packages) by which Government can raise additional revenues in order to pay for the project.

Input will be required from:-

Executive Council	critique of revenue alternatives
Financial Secretary	strategy and financing costs
Design team	construction costs
Attorney General	advice on regulations and legislation regarding financing measures.

The unit will next be responsible for working with the same Portfolio to secure financing for the project. Funds may be obtained from the Caribbean Development Bank, the Government of the United Kingdom, or from local commercial banks. Bridge financing may be required depending upon the source of funds.

The unit will also handle project accounting and general administration throughout the project.

6 Design

In order to facilitate the preparation, financing and construction of the project, detailed final design plans and documentation shall be prepared by a firm(s) of professional engineers describing, specifying and quantifying all the works necessary for the efficient completion of the project in accordance with accepted international standards.

A proposal for this service was solicited from a joint venture of Wilbur Smith Associates and David Lashley and Partners the second week of April, 1989. The consultant's design team will most likely consist of:-

- Design Manager
- Senior Design Engineer
- Design Engineer
- Technician (2).

In addition to the above, the Public Works Department will provide a Junior Engineer, Mark Scotland, and secretarial services. The proposed Resident Engineer/Construction Manager, Peter Ogden, should be assigned to the design team so that he will be familiar with all assumptions and critical decisions made during the design process. This will prove valuable during the actual construction phase.

7 Surveying and Mapping

As with most civil engineering projects; surveys and maps form the basis of all designs, quantities, cost estimates and financial decisions. In consultation with the Chief Surveyor, it is estimated that two survey crews will be required during the design and pre-contract stages of the project. These crews will be responsible for field verification of any information and also to gather any additional field information for the final design. During the construction stage of the project, one crew will be required to monitor the contractor's line and grade staking. During the final compensation stage of the project, it may be necessary to have two full time crews to perform boundary surveys and as-built plans of the facilities.

It is vital that each survey team be properly equipped. This includes total station survey equipment, desktop computers for reduction and plotting of field information, as well as transportation and normal office facilities.

8 Land Acquisition (Undeveloped Lands)

This is obviously the most critical of all basic task groups. In the Cayman Islands, land has been acquired under the concept of eminent domain, but never on a fast track basis as demanded by this project. It is estimated that land will have to be "acquired"¹ from approximately 100 parcels in a period of 2 years. For comparison, the Lands and Survey Department presently has 1 Lands Officer and has acquired the following number of parcels either in whole or part over the last 4 years.

<u>Year</u>	<u>Number of Property Acquisitions</u>
1986	N/A
1987	N/A
1988	Approx. 12
1989	Approx. 15

Another comparison can be made to a similar highway project recently constructed in Barbados. The project involved the construction of a new highway from the Grantley Adams Airport to Bridgetown. A team of five "legal personnel" acquired approximately 300 parcels in whole or part over a period of 18 months.

It presently appears that the most efficient way of putting together a team of land acquisition personnel would be to retain a firm of professional Chartered Surveyors. Three such proposals have been received by the Director of Lands and Survey. One of these was evaluated for the purposes of this report and it is estimated that the service offered would cost approximately US \$ 1.5 M with the proposed 4 project personnel. These proposals should be evaluated by the MGTP Steering Committee who should make a recommendation as to acceptance or otherwise.

¹Land is not actually acquired for public roads, though land owners are compensated for the loss of it.

9 Land Acquisition (Developed Lands)

Resettlement is actually an integral part of the land acquisition process. However, it has been classified as a separate Basic Task Group because of the sensitive nature of the process. It is proposed that this task be managed under the auspices of the Social Services Department so that the concerns of the people who must be relocated are held paramount throughout the process.

Approximately 12 households are going to have to be resettled. The majority of these are in the Rock Hole area of George Town. The additional work load placed upon the Social Services Department by this project could reasonably be managed by two staff members who should be temporarily assigned to the Task Force. Their duties would include assisting the head of household in filing all claims for compensation, identifying whether the claimants want compensation in kind or in currency, locating alternative sites for new homes, identifying the size and facilities required in new homes and assisting in the physical movement of the people and their belongings. An officer from the Planning Department should be assigned to this group to assist the Social Services officers with technical matters relating to housing sites, construction practices and permitting.

10 Re-zoning

Whenever a new principal highway is constructed, the development potential of the adjacent lands change. Land use zoning is currently out of date in the Cayman Islands due to the recent rapid rate of development and the lack of a current development plan. The most effective way to handle the potential rezoning issues generated by the MGTP Phase One projects would be to update the Development Plan, 1977 with a new, comprehensive land use plan.

The Director of Planning was consulted on this matter at a meeting of the MGTP Steering Committee on 25 May, 1989. It is recommended that a consultant be engaged to conduct a land use and zoning study as a part of the implementation of the MGTP Phase One projects. The estimated cost for this exercise is CI \$150,000. In lieu of such an undertaking, applications for a change in land use will have to be dealt with on an individual basis as the present system allows.

11 Contract Management

It is normal practice to retain the Design Engineer to manage the reconstruction contract. The role is then referred to as that of Resident Engineer (RE). This concept will be followed

with the exception that the R.E. be a full time member of the PWD staff working under the direction of the Design and Construction Consultant.

He is Mr. Peter Ogden who recently completed the new terminal building at the Gerrard Smith International Airport, Cayman Brac and was re-engaged by PWD with this role in mind. He should be assisted by one junior engineer and a minimum of three inspectors.

The survey crews referred to in a preceding section should be assigned to him as well as a Construction Cost Accountant. The duties of the Construction Cost Accountant will be more detailed and almost separate from the Project Cost Accountant who will manage the overall project finances.

Materials testing and quality control could be performed by the R.E.'s staff or by an independent quality control laboratory.

12 Environmental Impact Assessment and Mitigation

Though never performed on any major public works project in the Cayman Islands, Environmental Impact Assessment (EIA) is becoming a topic of much debate. This is primarily due to the recent large North Sound dredging projects. The MGTP Phase One project will undoubtedly have some impacts on the environment of Grand Cayman. For example, the storm water drainage patterns along the West Bay Beach peninsula could be dramatically altered by the project. Additionally the amount of muck removal and disposal could pose some short term environmental problems. Therefore it would be in the best interest of the country to initiate EIA with this project.

It should be managed by the Natural Resources Laboratory as they now retain the most knowledge of Grand Cayman's environmental ecosystems. A team of consultants should be retained to do the actual work.

13 Public Relations

On any project designed to provide a service to the general public and the community at large, it is most wise to keep them constantly informed and current on all aspects of it. Because of the magnitude of this project and the resulting impacts on the people of the Cayman Islands, a great deal of public relations works will be required.

In keeping with the philosophy of the Task Force being formed out of as many Civil Service personnel as possible, the public relations task should be managed by a staff member from Government Information Services (GIS). The services of a private sector public relations firm should be considered. If engaged, they should be managed by the task force member from GIS.

14 Schedule

14.1 General

The following fold-out is a project network schedule developed using a critical path method (CPM) of analysis. The left side of the page lists the 101 tasks and the corresponding early start date and the late finish date for each task. Tasks that form the critical path are indicated with an "*" on the list and shown as a double lined box on the network schedule. These tasks are called "critical" in that they cannot be delayed without delaying the entire project. All other tasks have a certain amount of "float time" meaning that they could start or finish later than actually scheduled without delaying the entire project provided that they are finished no later than their "late finish" time.

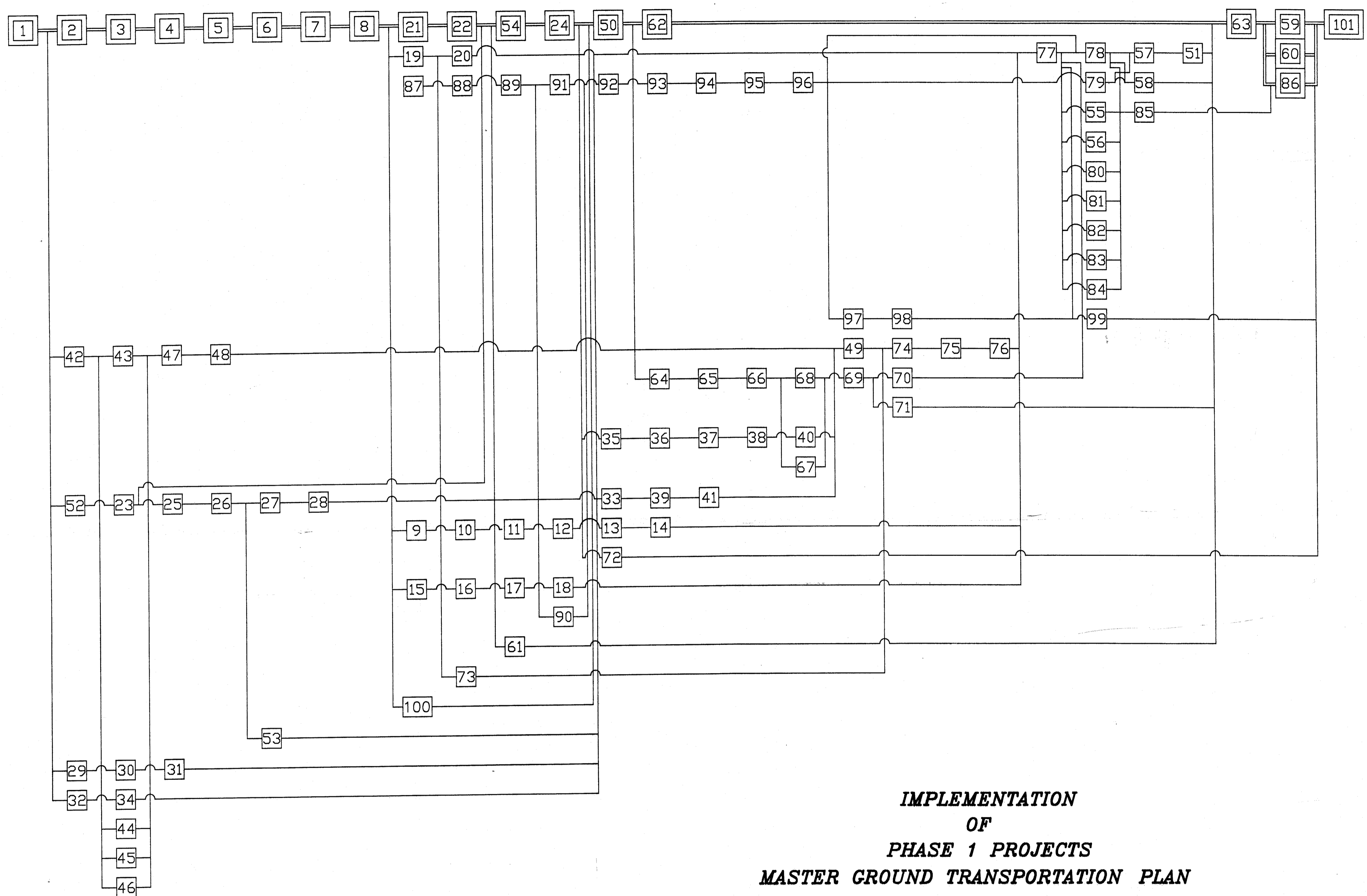
14.2 Tasks

No.	DESCRIPTION	EARLY START	LATE FINISH	CRITICAL TASK
1	START OF PROJECT	Jan 2, 89	Mar 27, 89	*
FINANCE AND FUNDING				
2	PENULTIMATE FINANCIAL PLAN	Jan 2, 89	May 17, 89	*
3	SUBMIT PEN. FP TO EXCO	Apr 17, 89	May 18, 89	*
4	SUBMIT PEN. FP TO MLA'S	May 15, 89	May 25, 89	*
5	SUBMIT PEN. FP TO PUBLIC REVIEW	May 22, 89	Jun 15, 89	*
6	FINAL FINANCIAL PLAN	Jun 12, 89	Jun 22, 89	*
7	SUBMIT FINAL FP TO EXCO	Jun 19, 89	Jun 26, 89	*
8	APPROVAL OF FINANCIAL PLAN	Jun 23, 89	Jun 27, 89	*
PROJECT MANAGEMENT				
9	DRAFT LEGISLATION CHANGES	Jun 27, 89	Apr 15, 89	
10	APPROVAL OF LEGIS. CHANGES BY EXCO	Aug 22, 89	Apr 29, 91	
11	LEGIS. CHANGES - GREEN PAPER	Sep 5, 89	May 13, 91	
12	APPROVAL OF LEGIS. CHANGES BY LA	Sep 19, 89	May 27, 91	
13	LEGIS. CHANGES - WHITE PAPER	Oct 3, 89	Jun 24, 89	
14	PUBLISH LEGIS. CHANGES IN GAZETTE	Oct 31, 89	Jul 8, 91	
15	DRAFT REGULATION CHANGES	Jun 27, 89	May 13, 91	
16	APPROVAL OF REG. BY EXCO	Aug 22, 89	May 27, 91	
17	REG. CHANGES - WHITE PAPER	Sep 5, 89	Jun 24, 91	
18	PUBLISH REG. IN GAZETTE	Oct 3, 89	Jul 8, 91	
19	NEGOTIATE FINANCING	Jun 27, 89	Mar 11, 91	
20	NEGOTIATE BRIDGE FINANCING	Sep 26, 89	Jul 8, 91	
21	SET UP PROJECT MANAGEMENT TEAM	Jun 27, 89	Aug 25, 89	*
22	COMPOSITE MAPS INTO DEVELOPMENT PLAN	Aug 25, 89	Oct 25, 89	*
DESIGN				
23	DIGITIZE 1:500 P&P MAPS	Jan 16, 89	Oct 25, 89	
24	HORIZONTAL ALIGNMENT ON 1:500 P&P	Dec 6, 89	Jan 17, 90	*
25	NEGOTIATE ACCESS TO SWAMP AREAS	Oct 13, 89	Jan 3, 91	
26	CONSTRUCT ACCESS TRAIL(S)	Oct 16, 89	Jan 24, 91	
27	SAMPLE SOILS	Nov 6, 89	Feb 14, 91	
28	LABORATORY ANALYSIS	Nov 27, 89	Mar 14, 91	
29	LIAISE WITH M.R.C.U. RE: DYKES	Jan 2, 89	Feb 26, 91	

No.	DESCRIPTION	EARLY START	LATE FINISH	CRITICAL TASK
30	SELECT DRAINAGE POINTS/AREAS/BASINS	Jul 10, 89	Feb 28, 91	
31	SELECT METHODS & SIZE FACILITIES	Jul 12, 89	Mar 14, 91	
32	WORK OUT PED-XING WITH HYATT BRITANNIA	Jan 2, 89	Feb 14, 91	
33	VERTICAL DESIGN	Jan 17, 90	Mar 21, 91	
34	STRUCTURES DESIGN	Jul 31, 89	Mar 14, 91	
35	IDENTIFY & SELECT ALL ACCESS POINTS	Jan 17, 90	Jan 3, 91	
36	SELECT TRAFFIC CONTROL CONCEPTS	Jan 24, 90	Jan 17, 91	
37	GEOMETRICS OF EACH INTERSECTION	Feb 7, 90	Feb 14, 91	
38	DESIGN CONTROL DEVICES	Mar 7, 90	Mar 28, 91	
39	PAVEMENT DESIGN	Jan 24, 90	Mar 28, 91	
40	LIGHTING DESIGN	Apr 18, 90	Apr 11, 91	
41	SIGNING & STRIPING DESIGN	Jan 31, 90	Apr 11, 91	
42	POLICY DECISION ON UTILITIES IN R/W	Jan 2, 89	Feb 21, 91	
43	LIAISE WITH C.U.C.	Jul 17, 89	Feb 28, 91	
44	LIAISE WITH C & W	Jul 17, 89	Feb 28, 91	
45	LIAISE WITH CAYMAN WATER COMPANY	Jul 17, 89	Feb 28, 91	
46	LIAISE WITH WATER AUTHORITY	Jul 17, 89	Feb 28, 91	
47	SET STANDARDS & CRITERIA	Jul 24, 89	Mar 14, 91	
48	ASSIGNMENT OF UTILITIES	Aug 7, 89	Apr 11, 91	
49	SPECIFICATIONS AND CONTRACT DOCUMENTS	May 2, 90	May 9, 91	
SURVEYING AND MAPPING				
50	SECTION 3 NOTICE	Jan 17, 90	Jan 17, 90	*
51	SECTION 5 NOTICE	May 25, 92	Jan 13, 93	
52	WB RD BASELINE SURVEY	Jan 2, 89	Aug 2, 89	
53	SURVEY SOIL PROFILES	Nov 6, 89	Mar 14, 91	
54	CONFIRM OR VERIFY DETAIL ON 1:500 P&P	Oct 25, 89	Dec 6, 89	*
55	MONITOR R/W STAKING	Aug 10, 90	Dec 13, 93	
56	MONITOR GRADE STAKING	Aug 10, 90	Dec 13, 93	
57	AS BUILT SURVEYS	Apr 13, 92	Jan 13, 93	
58	BOUNDARY SURVEYS FOR FINAL COMPENSATION	Apr 13, 92	Jan 13, 93	
59	AMENDMENTS TO REGISTRY MAP	Jan 12, 94	Mar 14, 94	*
60	AMENDMENTS TO LAND REGISTRY	Jan 12, 94	Mar 14, 94	*
LAND ACQUISITION (UNDEVELOPED LANDS)				
61	CLAIMS DUE TO DISALLOWING DEVELOPMENT	Oct 25, 89	Jan 13, 93	
62	SECTION 3 NOTICE CLAIMS	Jan 17, 90	Jan 13, 93	*
63	SECTION 5 NOTICE CLAIMS	Jan 13, 93	Jan 12, 94	*
LAND ACQUISITION (DEVELOPED LANDS)				
64	NEGOTIATIONS WITH EACH OWNER / OCCUPANT	Jan 17, 90	Feb 7, 91	
65	LOCATION OF NEW SITES	Jul 4, 90	Apr 10, 91	
66	HOUSING DESIGNS AND APPROVALS	Sep 3, 90	Jun 10, 91	
67	UTILITIES FOR NEW HOUSING	Nov 2, 90	Feb 6, 92	
68	HOUSING CONSTRUCTION	Nov 2, 90	Feb 6, 92	
69	MOVE FAMILIES	Jul 3, 91	Feb 6, 92	
70	DEMOLITION	Jul 31, 91	Mar 19, 92	
71	RELOCATION COMPENSATION	Jul 31, 91	Jan 13, 93	
RE-ZONING				
72	RE-ZONING ALONG PRIMARY ARTERIALS	Jan 17, 90	Mar 14, 94	
CONTRACT MANAGEMENT				
73	PREQUALIFY CONTRACTORS	Sep 26, 89	May 9, 91	
74	TENDER	May 30, 90	Jun 10, 91	
75	EVALUATE TENDERS	Jun 29, 90	Jun 24, 91	

No . DESCRIPTION	EARLY START	LATE FINISH	CRITICAL TASK
76 DECISION BY PUBLIC TENDERS BOARD	Jul 13, 90	Jul 8, 91	
77 AWARD CONTRACT	Jul 27, 90	Jul 22, 91	
78 PHYSICAL CONSTRUCTION I	Aug 10, 90	Nov 18, 92	
79 PHYSICAL CONSTRUCTION II	Aug 14, 91	Nov 18, 92	
80 MATERIALS TESTING AND QUALITY CONTROL	Aug 10, 90	Dec 13, 93	
81 INSPECTION OF AND APPROVAL OF WORKS	Aug 10, 90	Dec 13, 93	
82 MEASURE AND VALUE OF WORKS	Aug 10, 90	Dec 13, 93	
83 PROGRESS REPORTS	Aug 10, 90	Dec 13, 93	
84 CERTIFY PAYMENTS	Aug 10, 90	Dec 13, 93	
85 CERTIFY COMPLETION	Aug 7, 92	Jan 12, 94	
86 POST COMPLETION REPORT	Jan 12, 94	Mar 14, 94	*
ENVIRONMENTAL IMPACT ASSESSMENT			
87 IDENTIFY AND ORGANIZE TEAM	Jun 27, 89	Jul 25, 90	
88 SELECT COORDINATOR	Jul 26, 89	Aug 8, 90	
89 SET TERMS OF REFERENCE	Aug 9, 89	Aug 22, 90	
90 WRITE DESCRIPTION OF PROPOSED ACTION	Aug 23, 89	Sep 5, 90	
91 REVIEW EXISTING LEGISLATION	Aug 23, 89	Sep 5, 90	
92 IMPACT IDENTIFICATION (SCOPING)	Sep 6, 89	Nov 5, 90	
93 BASELINE STUDY	Nov 7, 89	Jan 3, 91	
94 IMPACT EVALUATION (QUANTIFICATION)	Jan 5, 90	Jan 17, 91	
95 PROPOSE ALTERNATIVE MITIGATION MEASURES	Jan 19, 90	Jan 31, 91	
96 ASSESSMENT (COMPARISON OF ALTERNATIVES)	Feb 2, 90	Mar 4, 91	
97 DECISION MAKING	Mar 6, 90	Mar 18, 91	
98 IMPLEMENT MITIGATION MEASURES	Mar 20, 90	Mar 15, 93	
99 POST AUDITING	Mar 17, 92	Mar 14, 94	
PUBLIC RELATIONS			
100 INITIAL PUBLIC RELATIONS	Jun 27, 89	Jan 17, 90	
101 FINISH	Mar 14, 94	Mar 14, 94	*

No.	DESCRIPTION	EARLY START	LATE FINISH	CRITICAL TASK
1	START OF PROJECT	Jan 2, 89	Mar 27, 89	*
FINANCE AND FUNDING				
2	PRELIMINARY FINANCIAL PLAN	Jan 2, 89	May 17, 89	*
3	SUBMIT PEN. PP TO EXCO	Apr 17, 89	May 18, 89	*
4	SUBMIT PEN. PP TO MLA'S	May 15, 89	May 25, 89	*
5	SUBMIT PEN. PP TO PUBLIC REVIEW	May 22, 89	Jun 15, 89	*
6	FINAL FINANCIAL PLAN	Jun 12, 89	Jun 22, 89	*
7	SUBMIT FINAL PP TO EXCO	Jun 19, 89	Jun 26, 89	*
8	APPROVAL OF FINANCIAL PLAN	Jun 23, 89	Jun 27, 89	*
PROJECT MANAGEMENT				
9	DRAFT LEGISLATION CHANGES	Jun 27, 89	Apr 15, 89	
10	APPROVAL OF LEGIS. CHANGES BY EXCO	Aug 22, 89	Apr 29, 91	
11	LEGIS. CHANGES - GREEN PAPER	Sep 5, 89	May 13, 91	
12	APPROVAL OF LEGIS. CHANGES BY LA	Sep 19, 89	May 27, 91	
13	LEGIS. CHANGES - WHITE PAPER	Oct 3, 89	Jun 24, 89	
14	PUBLISH LEGIS. CHANGES IN GAZETTE	Oct 31, 89	Jul 8, 91	
15	DRAFT REGULATION CHANGES	Jun 27, 89	May 13, 91	
16	APPROVAL OF REG. BY EXCO	Aug 22, 89	May 27, 91	
17	REG. CHANGES - WHITE PAPER	Sep 5, 89	Jun 24, 91	
18	PUBLISH REG. IN GAZETTE	Oct 3, 89	Jul 8, 91	
19	NEGOTIATE FINANCING	Jun 27, 89	Mar 11, 91	
20	NEGOTIATE BRIDGE FINANCING	Sep 26, 89	Jul 8, 91	
21	SET UP PROJECT MANAGEMENT TEAM	Jun 27, 89	Aug 25, 89	*
22	COMPOSITE MAPS INTO DEVELOPMENT PLAN	Aug 25, 89	Oct 25, 89	*
DESIGN				
23	DIGITIZE 1:500 PAP MAPS	Jan 16, 89	Oct 25, 89	
24	HORIZONTAL ALIGNMENT ON 1:500 PAP	Dec 6, 89	Jan 17, 90	
25	NEGOTIATE ACCESS TO SWAMP AREAS	Oct 13, 89	Jan 3, 91	
26	CONSTRUCT ACCESS TRAIL(S)	Oct 16, 89	Jan 24, 91	
27	SAMPLE SOILS	Nov 6, 89	Feb 14, 91	
28	LABORATORY ANALYSIS	Nov 27, 89	Mar 14, 91	
29	LIAISE WITH M.R.C.U. RE: DYKES	Jan 2, 89	Feb 26, 91	
30	SELECT DRAINAGE POINTS/AREAS/BASINS	Jul 10, 89	Feb 28, 91	
31	SELECT METHODS & SIZE FACILITIES	Jul 12, 89	Mar 14, 91	
32	WORK OUT PED-WALKING WITH HYATT BRITANNIA	Jan 2, 89	Feb 14, 91	
33	VERTICAL DESIGN	Jan 17, 90	Mar 14, 91	
34	STRUCTURES DESIGN	Jul 31, 89	Mar 14, 91	
35	IDENTIFY & SELECT ALL ACCESS POINTS	Jan 17, 90	Jan 3, 91	
36	SELECT TRAFFIC CONTROL CONCEPTS	Jan 24, 90	Jan 17, 91	
37	GEOMETRICS OF EACH INTERSECTION	Feb 7, 90	Feb 14, 91	
38	DESIGN CONTROL DEVICES	Mar 7, 90	Mar 28, 91	
39	PAVEMENT DESIGN	Jan 24, 90	Mar 28, 91	
40	LIGHTING DESIGN	Apr 18, 90	Apr 11, 91	
41	SIGNING & STRIPING DESIGN	Jan 31, 90	Apr 11, 91	
42	POLICY DECISION ON UTILITIES IN R/W	Jan 2, 89	Feb 21, 91	
43	LIAISE WITH C.U.C.	Jul 17, 89	Feb 28, 91	
44	LIAISE WITH C & W	Jul 17, 89	Feb 28, 91	
45	LIAISE WITH CAYMAN WATER COMPANY	Jul 17, 89	Feb 28, 91	
46	LIAISE WITH WATER AUTHORITY	Jul 17, 89	Feb 28, 91	
47	SET STANDARDS & CRITERIA	Jul 24, 89	Mar 14, 91	
48	ASSIGNMENT OF UTILITIES	Aug 7, 89	Apr 11, 91	
49	SPECIFICATIONS AND CONTRACT DOCUMENTS	May 2, 90	May 9, 91	
SURVEYING AND MAPPING				
50	SECTION 3 NOTICE	Jan 17, 90	Jan 17, 90	*
51	SECTION 5 NOTICE	May 25, 92	Jan 13, 93	*
52	WB RD BASELINE SURVEY	Jan 2, 89	Aug 2, 89	
53	SURVEY SOIL PROFILES	Nov 6, 89	Mar 14, 91	
54	CONFIRM OR VERIFY DETAIL ON 1:500 PAP	Oct 25, 89	Dec 6, 89	*
55	MONITOR R/W STAKING	Aug 10, 90	Dec 13, 93	*
56	MONITOR GRADE STAKING	Aug 10, 90	Dec 13, 93	*
57	AS BUILT SURVEYS	Apr 13, 92	Jan 13, 93	*
58	BOUNDARY SURVEYS FOR FINAL COMPENSATION	Jan 12, 94	Mar 14, 94	*
59	AMENDMENTS TO REGISTRY MAP	Jan 12, 94	Mar 14, 94	*
60	AMENDMENTS TO LAND REGISTRY	Jan 12, 94	Mar 14, 94	*
LAND ACQUISITION (UNDEVELOPED LANDS)				
61	CLAIMS DUE TO DISALLOWING DEVELOPMENT	Oct 25, 89	Jan 13, 93	*
62	SECTION 3 NOTICE CLAIMS	Jan 17, 90	Jan 13, 93	*
63	SECTION 5 NOTICE CLAIMS	Jan 13, 93	Jan 12, 94	*
LAND ACQUISITION (DEVELOPED LANDS)				
64	NEGOTIATIONS WITH EACH OWNER / OCCUPANT	Jan 17, 90	Feb 7, 91	
65	LOCATION OF NEW SITES	Jul 4, 90	Apr 10, 91	
66	HOUSING DESIGNS AND APPROVALS	Sep 3, 90	Jun 10, 91	
67	UTILITIES FOR NEW HOUSING	Nov 2, 90	Feb 6, 92	
68	HOUSING CONSTRUCTION	Nov 2, 90	Feb 6, 92	
69	MOVE FAMILIES	Jul 3, 91	Feb 6, 92	
70	DEMOLITION	Jul 31, 91	Mar 19, 92	
71	RELOCATION COMPENSATION	Jul 31, 91	Jan 13, 93	
RE-ZONING				
72	RE-ZONING ALONG PRIMARY ARTERIALS	Jan 17, 90	Mar 14, 94	
CONTRACT MANAGEMENT				
73	PREQUALIFY CONTRACTORS	Sep 26, 89	May 9, 91	
74	TENDER	May 30, 90	Jun 10, 91	
75	EVALUATE TENDERS	Jun 29, 90	Jun 24, 91	
76	DECISION BY PUBLIC TENDERS BOARD	Jul 13, 90	Jul 8, 91	
77	AWARD CONTRACT	Jul 27, 90	Jul 22, 91	
78	PHYSICAL CONSTRUCTION I	Aug 10, 90	Nov 18, 92	
79	PHYSICAL CONSTRUCTION II	Aug 14, 91	Nov 18, 92	
80	MATERIALS TESTING AND QUALITY CONTROL	Aug 10, 90	Dec 13, 93	
81	INSPECTION OF AND APPROVAL OF WORKS	Aug 10, 90	Dec 13, 93	
82	MEASURE AND VALUE OF WORKS	Aug 10, 90	Dec 13, 93	
83	PROGRESS REPORTS	Aug 10, 90	Dec 13, 93	
84	CERTIFY PAYMENTS	Aug 10, 90	Dec 13, 93	
85	CERTIFY COMPLETION	Aug 7, 92	Jan 12, 94	
86	POST COMPLETION REPORT	Jan 12, 94	Mar 14, 94	*
ENVIRONMENTAL IMPACT ASSESSMENT				
87	IDENTIFY AND ORGANIZE TEAM	Jun 27, 89	Jul 25, 90	
88	SELECT COORDINATOR	Jul 26, 89	Aug 8, 90	
89	SET TERMS OF REFERENCE	Aug 9, 89	Aug 22, 90	
90	WRITE DESCRIPTION OF PROPOSED ACTION	Aug 23, 89	Sep 5, 90	
91	REVIEW EXISTING LEGISLATION	Aug 23, 89	Sep 5, 90	
92	IMPACT IDENTIFICATION (SCOPING)	Sep 6, 89	Nov 5, 90	
93	BASELINE STUDY	Nov 7, 89	Jan 3, 91	
94	IMPACT EVALUATION (QUANTIFICATION)	Jan 5, 90	Jan 17, 91	
95	PROPOSE ALTERNATIVE MITIGATION MEASURES	Jan 19, 90	Jan 31, 91	
96	ASSESSMENT (COMPARISON OF ALTERNATIVES)	Feb 2, 90	Mar 4, 91	
97	DECISION MAKING	Mar 6, 90	Mar 18, 91	
98	IMPLEMENT MITIGATION MEASURES	Mar 20, 90	Mar 15, 93	
99	POST AUDITING	Mar 17, 92	Mar 14, 94	
PUBLIC RELATIONS				
100	INITIAL PUBLIC RELATIONS	Jun 27, 89	Jan 17, 90	
101	FINISH	Mar 14, 94	Mar 14, 94	*



**IMPLEMENTATION
OF
PHASE 1 PROJECTS
MASTER GROUND TRANSPORTATION PLAN**

7 Activity # 7 Critical Activity #

Tomlinson Engineering, Ltd.

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Date: 1 June, 1989
Drawn: B. Tomlinson

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