

California State University, Long Beach

UTILITY INFRASTRUCTURE MASTER PLAN



Prepared by P2S Engineering, Inc.
100% Submittal, Final Report
Issued November 27, 2006



CHAPTER 1 - EXECUTIVE SUMMARY

- Background and Scope 1.1
- Objective 1.1
- Methodology 1.1
- Report Overview 1.1
- Summary of Findings and Recommendations... 1.2
- Summary of Costs 1.4
- Proposed Facilities Master Plan..... 1.5

CHAPTER 2 - ANALYSIS OF PRESENT SYSTEMS

- Domestic Fire and Water 2.1
- Sanitary Sewer 2.7
- Storm Drain..... 2.12
- Irrigation Water 2.17
- Chilled and Heating Hot Water..... 2.21
- Natural Gas Systems 2.29
- Electrical Systems..... 2.35
- Telecommunications Systems..... 2.52

CHAPTER 3 - ANALYSIS OF FUTURE NEEDS

- Domestic Fire and Water 3.1
- Sanitary Sewer 3.2
- Storm Drain..... 3.4
- Irrigation Water 3.6
- Chilled and Heating Hot Water..... 3.7
- Natural Gas Systems 3.13
- Electrical Systems..... 3.14
- Telecommunications Systems..... 3.15

CHAPTER 4 - RECOMMENDATIONS

- Domestic Fire and Water 4.1
- Sanitary Sewer 4.5
- Storm Drain..... 4.10
- Irrigation Water 4.14
- Chilled and Heating Hot Water..... 4.18
- Natural Gas Systems 4.22
- Electrical Systems..... 4.23
- Telecommunications Systems..... 4.33

CHAPTER 5 -IMPLEMENTATION & PHASING PLAN

- Domestic Fire and Water 5.1
- Sanitary Sewer 5.2
- Storm Drain..... 5.3
- Irrigation Water 5.4
- Chilled and Heating Hot Water..... 5.5
- Natural Gas Systems 5.7
- Electrical Systems..... 5.8
- Telecommunications Systems..... 5.9

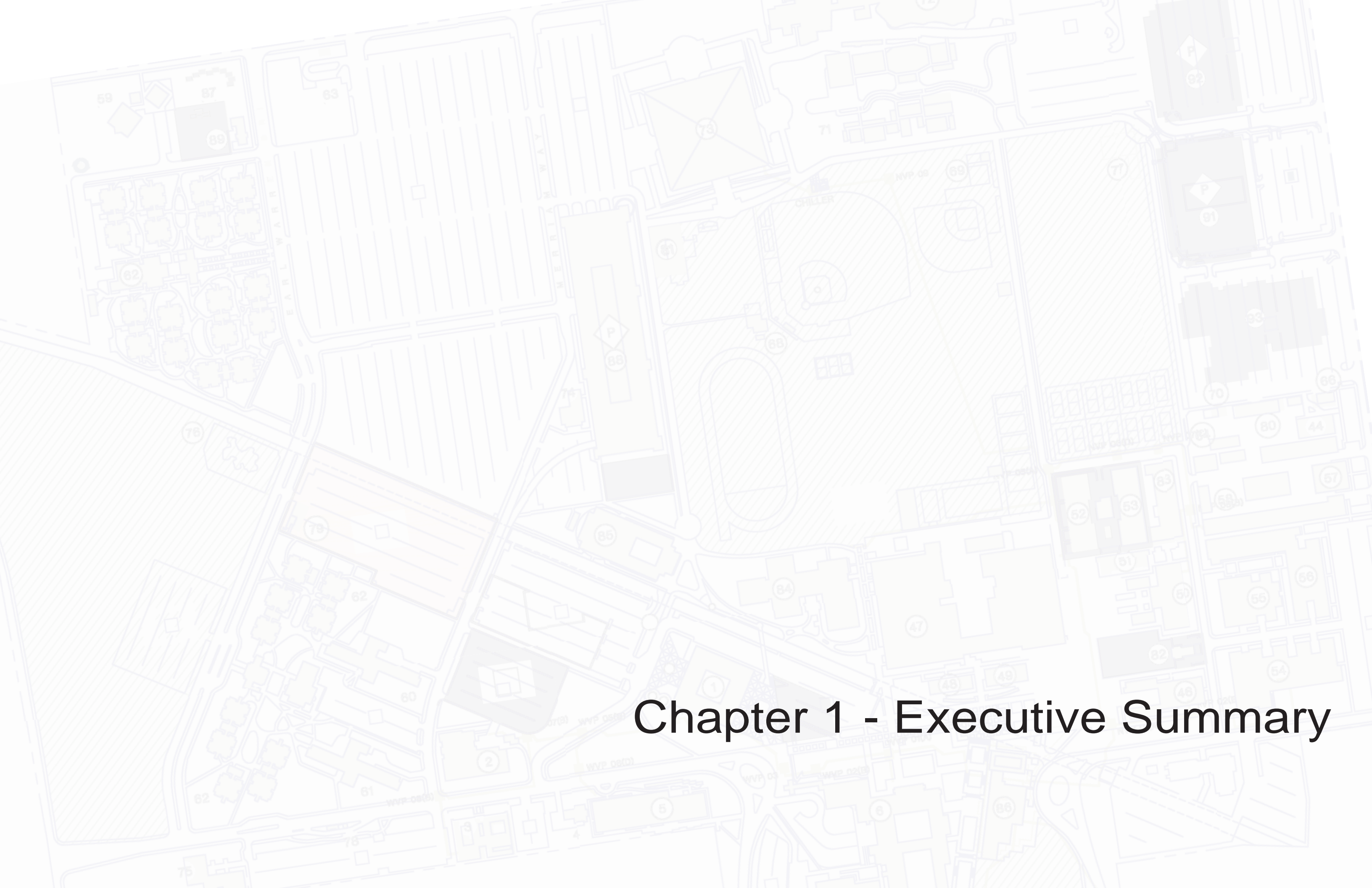
CHAPTER 6 - COSTS

- Domestic Fire and Water 6.1
- Sanitary Sewer 6.2
- Storm Drain..... 6.3
- Irrigation Water 6.4
- Chilled and Heating Hot Water..... 6.5
- Natural Gas Systems 6.5
- Electrical Systems..... 6.6
- Telecommunications Systems..... 6.7

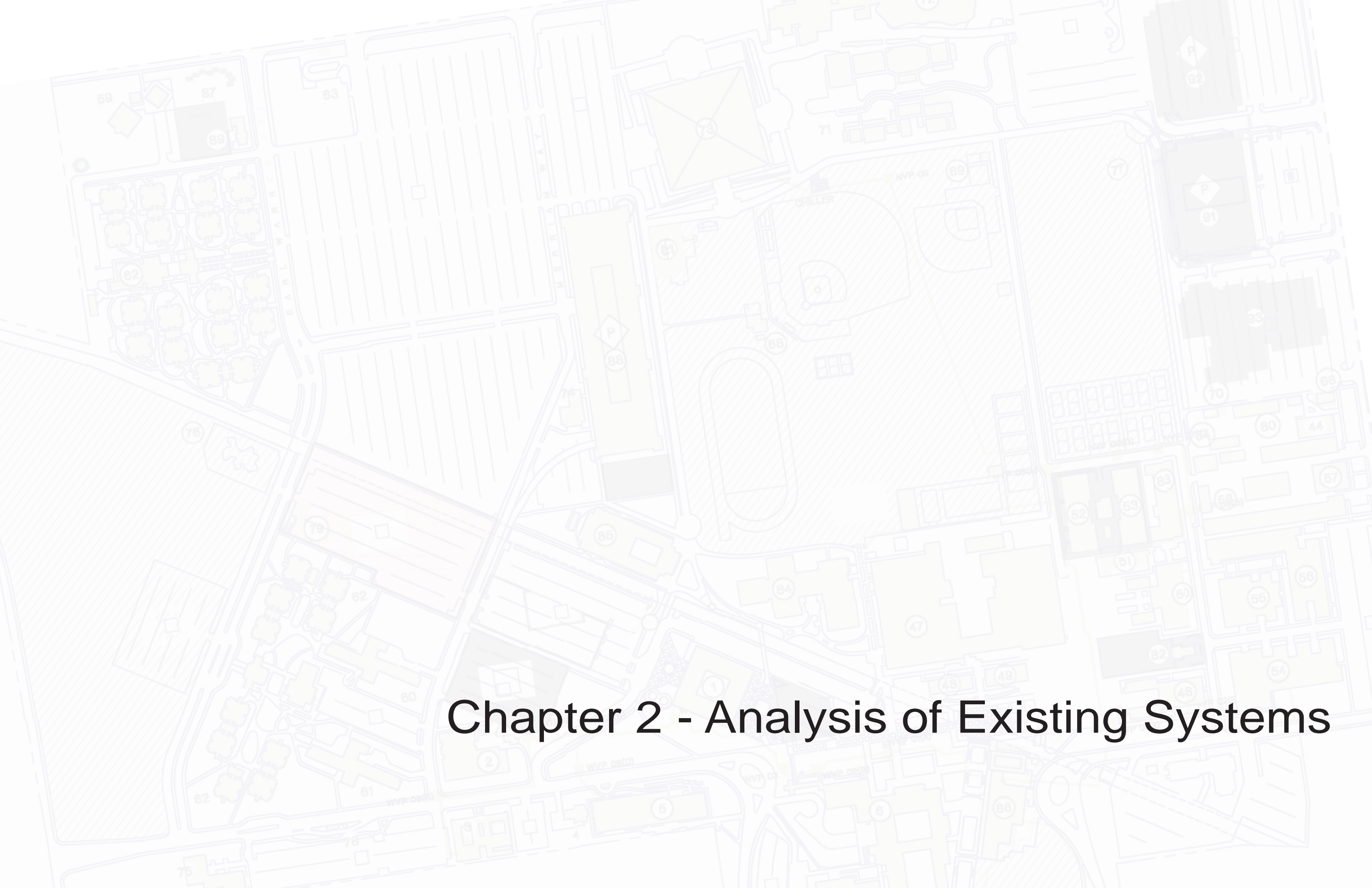
APPENDICES

- BMP Design Criteria 93 pages
- Sewer Flow Calculations..... 3 pages
- Storm Drain Tc Output..... 1 page
- Water Flow Calculations 3 pages
- Domestic Water System Hydraulic Model . 2 pages
- Natural Gas..... 21 pages
- Fire Protection 2 pages

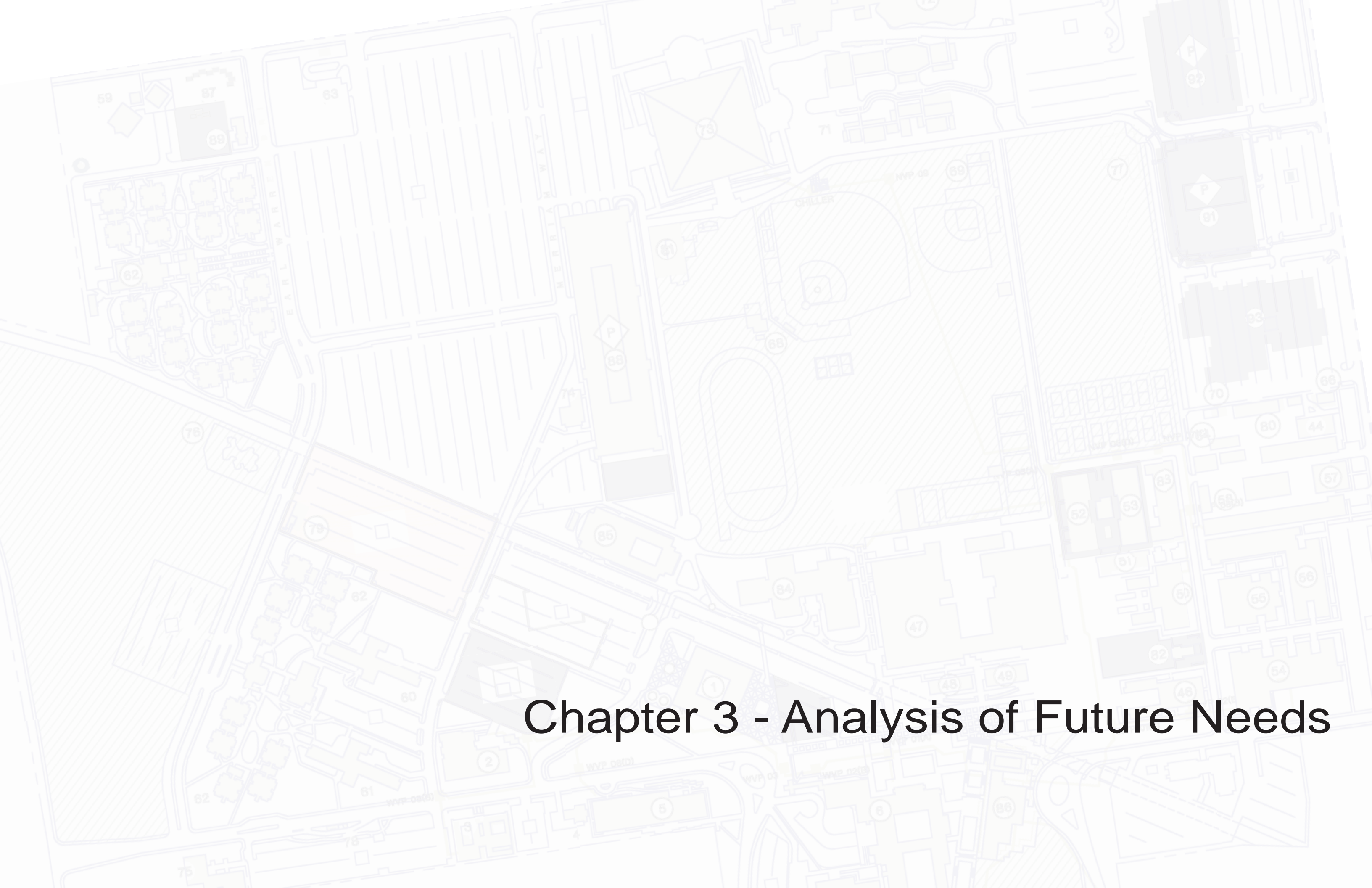




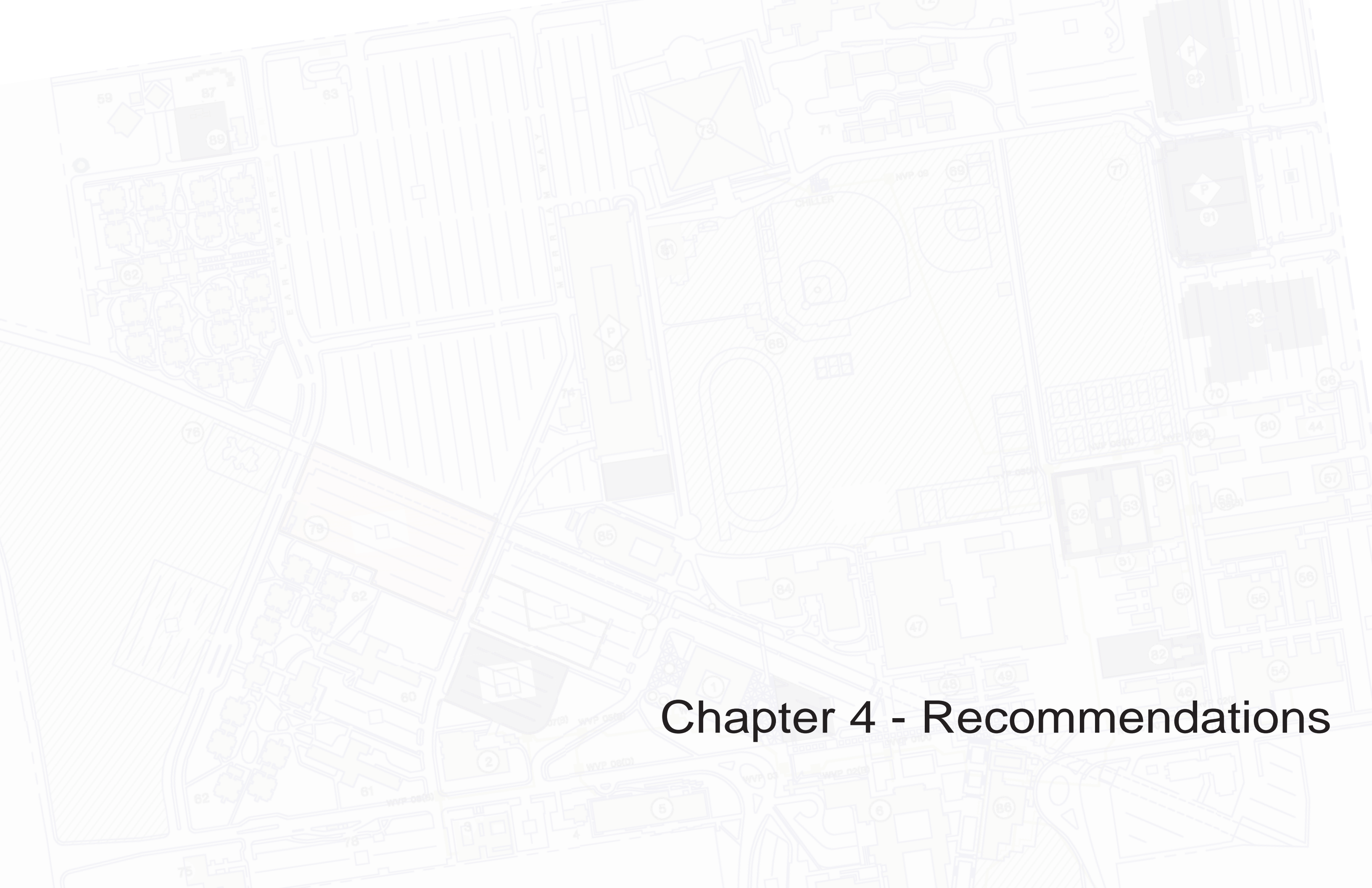
Chapter 1 - Executive Summary



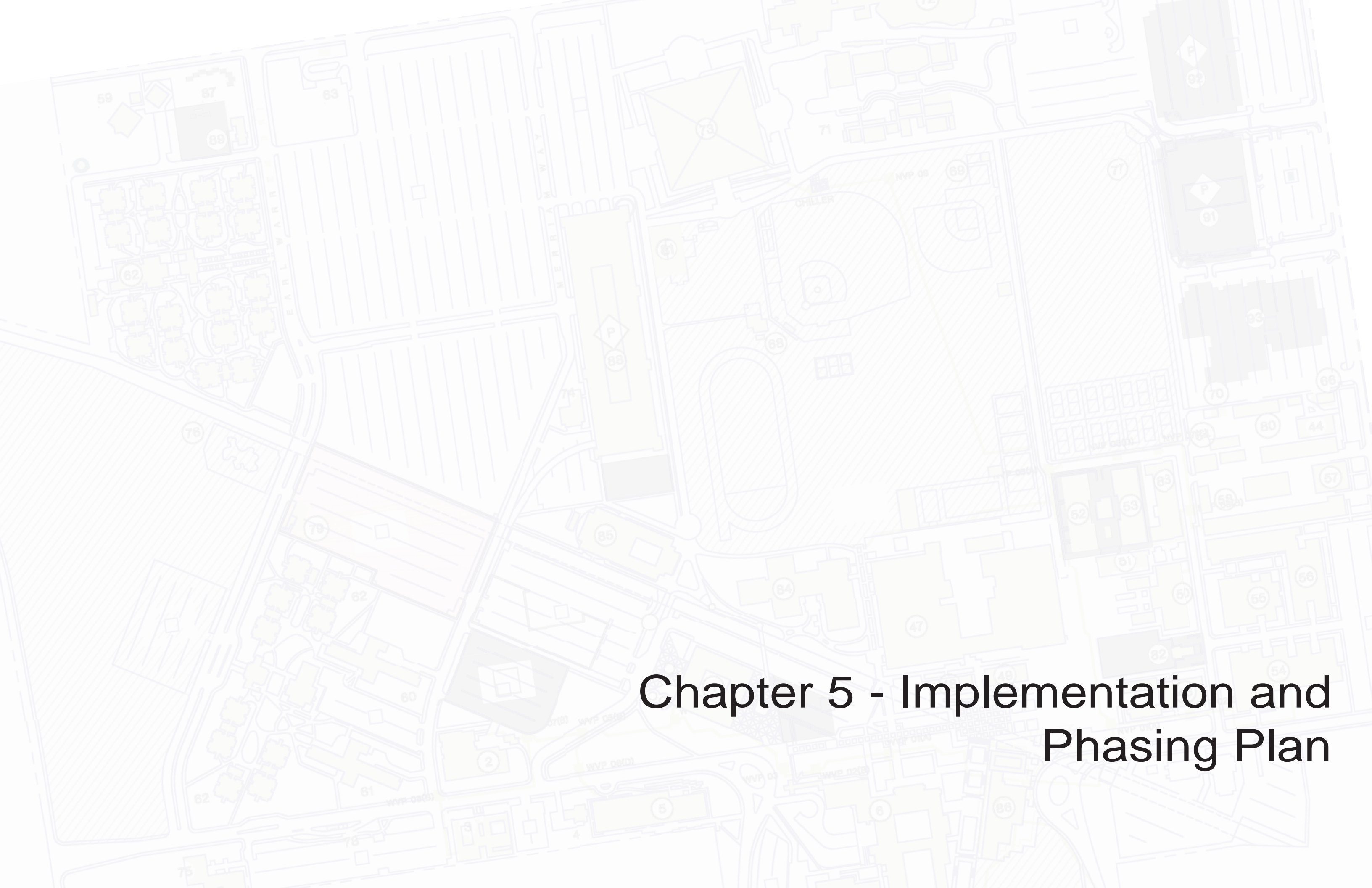
Chapter 2 - Analysis of Existing Systems



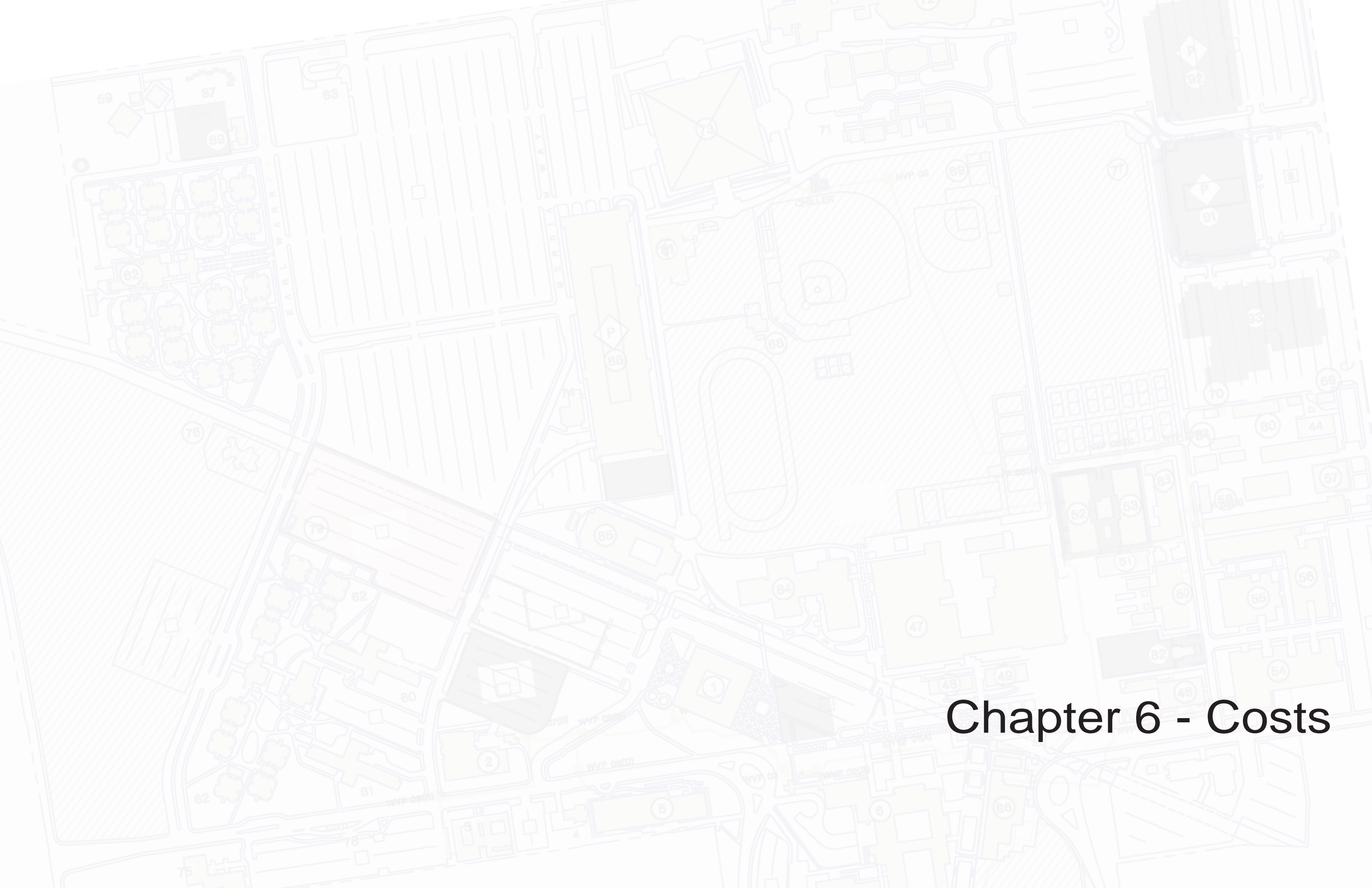
Chapter 3 - Analysis of Future Needs



Chapter 4 - Recommendations



Chapter 5 - Implementation and Phasing Plan



Chapter 6 - Costs