

SYSTEM ARCHITECTURE

THE RAPIDS CEMETERY

TEAM EMERALD

JANUARY 27TH, 2017

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INTRODUCTION

Overview

The aim of this project is to provide an interactive experience for the Rapids Cemetery visitors. Additionally, parties who run the cemetery will be able to easily add and edit various information about the cemetery itself on a separate webpage.

The interactive experience will be featured in our web application which will be accessible via mobile phones. A map with locations of tombstones will be presented to allow visitors to consume various tidbits and historical facts with ease.

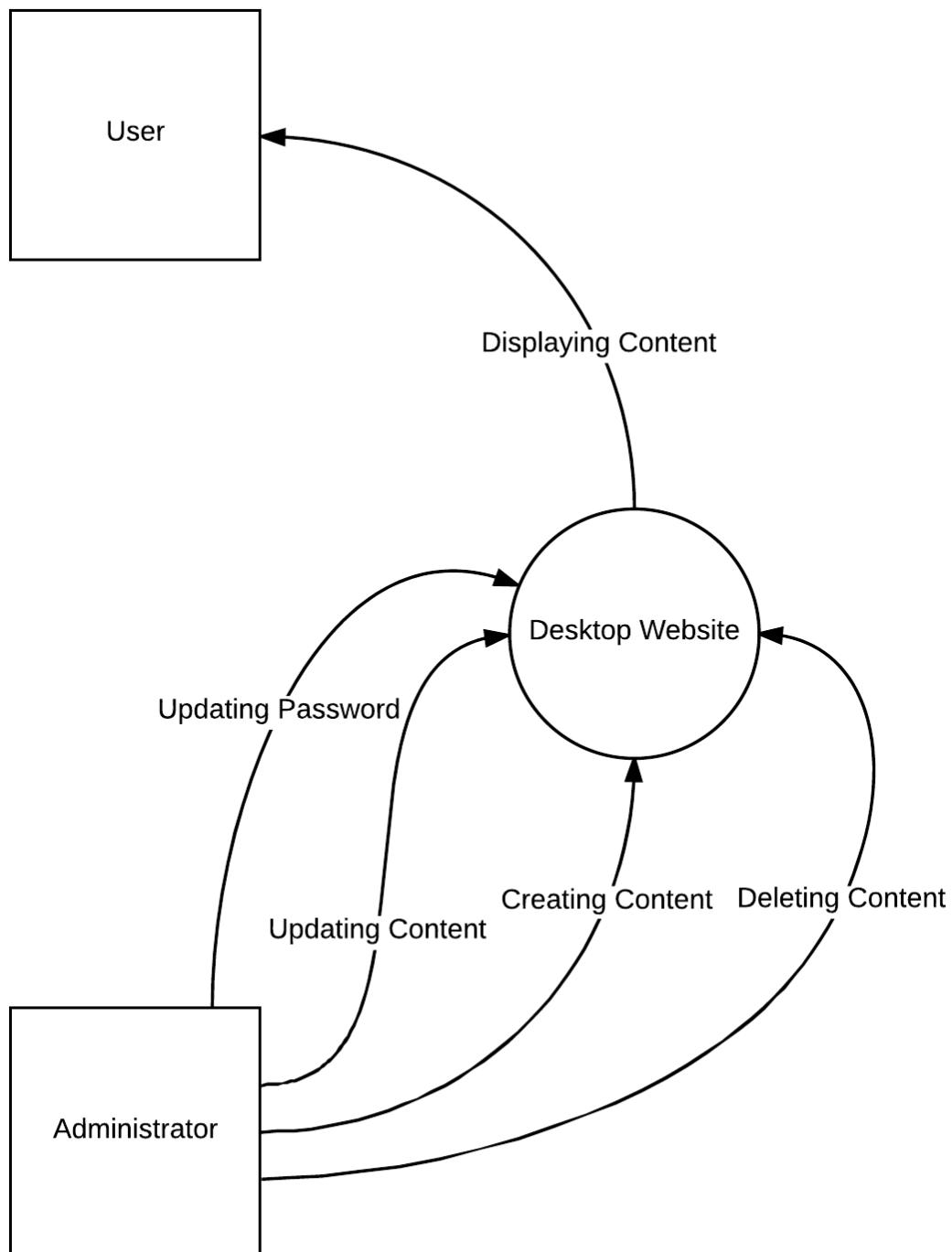
The website will allow for easy content management for administrators while the visitors will be able to enjoy reading about various flora surrounding the cemetery as well as any news that might be of interest.

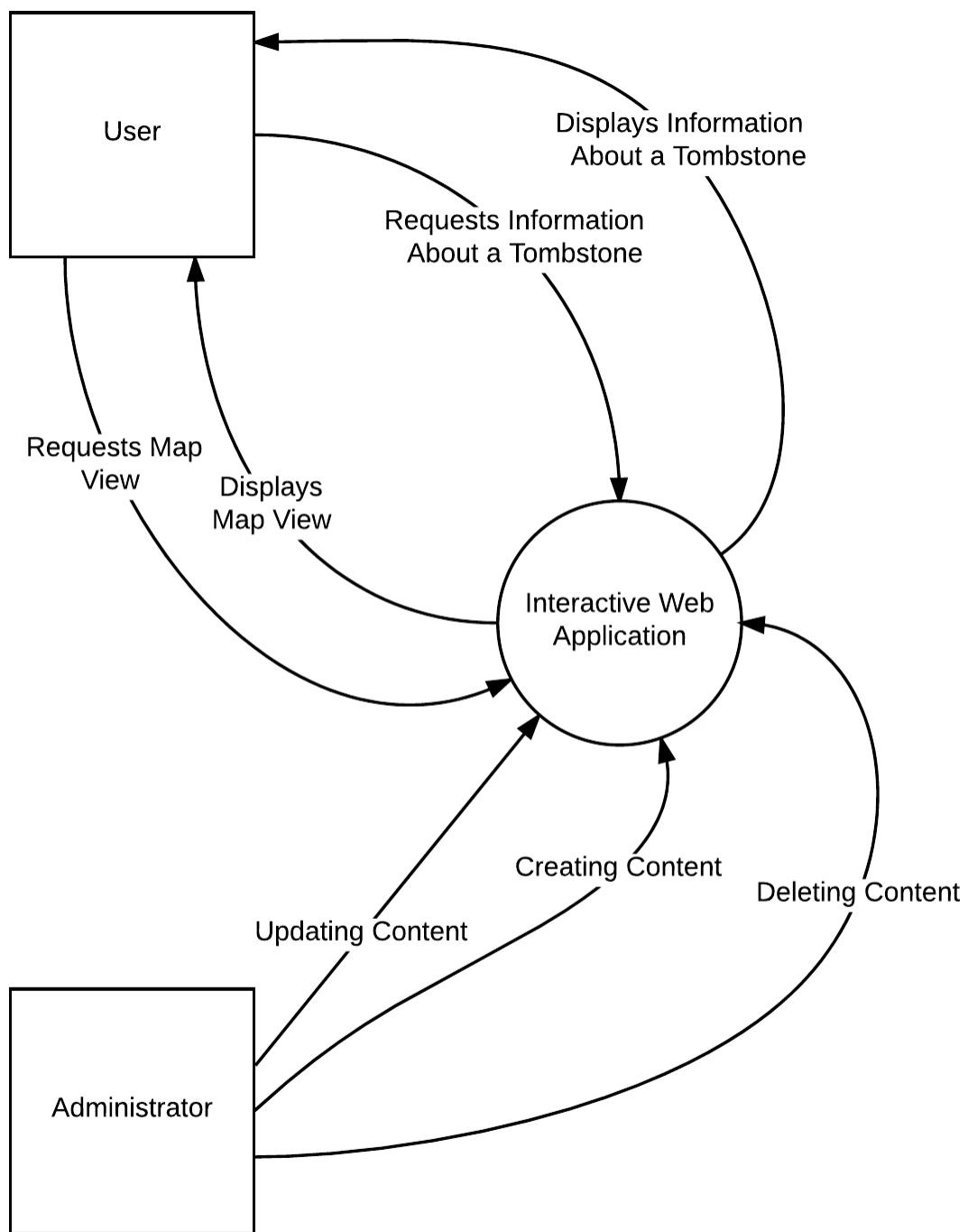
Purpose and Scope

This document will provide the necessary information about the project to our clients. Throughout the document, various descriptions, images, explanations and graphs will be provided in order to showcase how we'll implement different parts of the project.

Any kind of code snippets, in-detail team organization information or information pertinent to project cost will not be included within the document.

CONTEXT DIAGRAMS





HARDWARE REQUIREMENTS

Hardware requirements are based off the requirements set by GoDaddy.

- 64 bit System
- 2G of RAM
- Intel core (i3, i5, i7) processor

SOFTWARE REQUIREMENTS

Frontend

- CSS
- HTML
- Javascript
- Jquery
- Google maps API
- Apache web server

Backend

- PHP
- openSSL

Database

- MySQL/MariaDB

Operating system

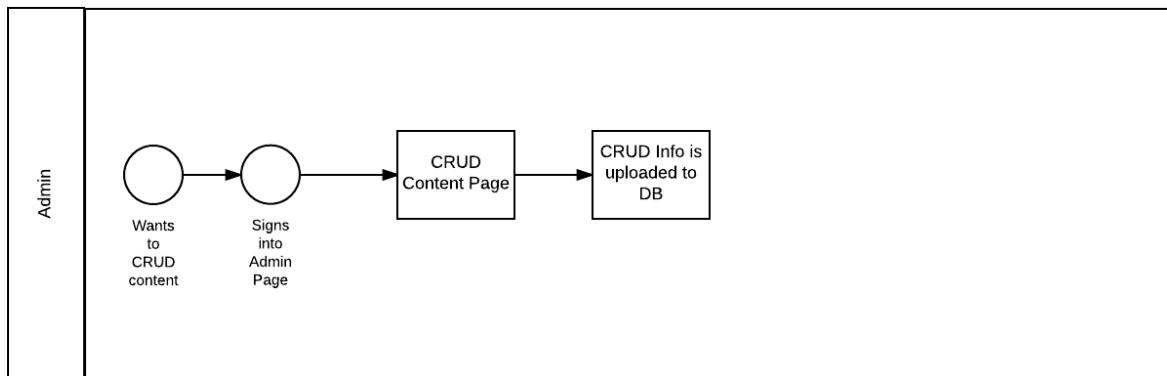
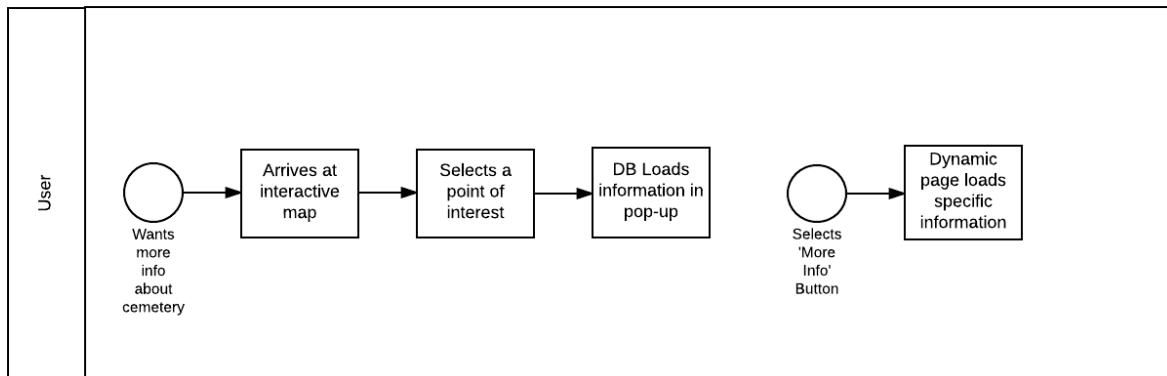
- Linux

Browser

- Microsoft Edge
- Google Chrome
- Safari
- FireFox
- Opera
- Internet Explorer

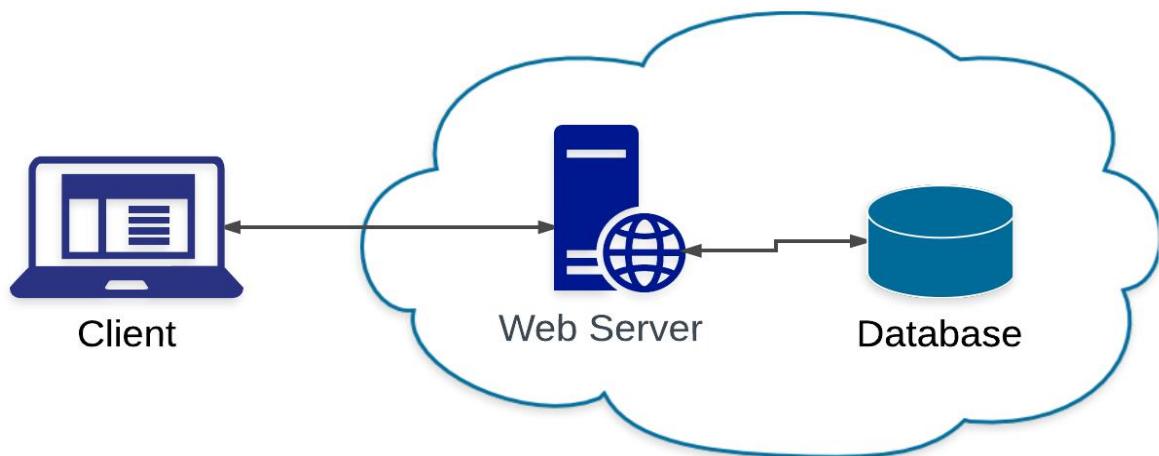
OPERATION MODE

PROCESS SHEET:

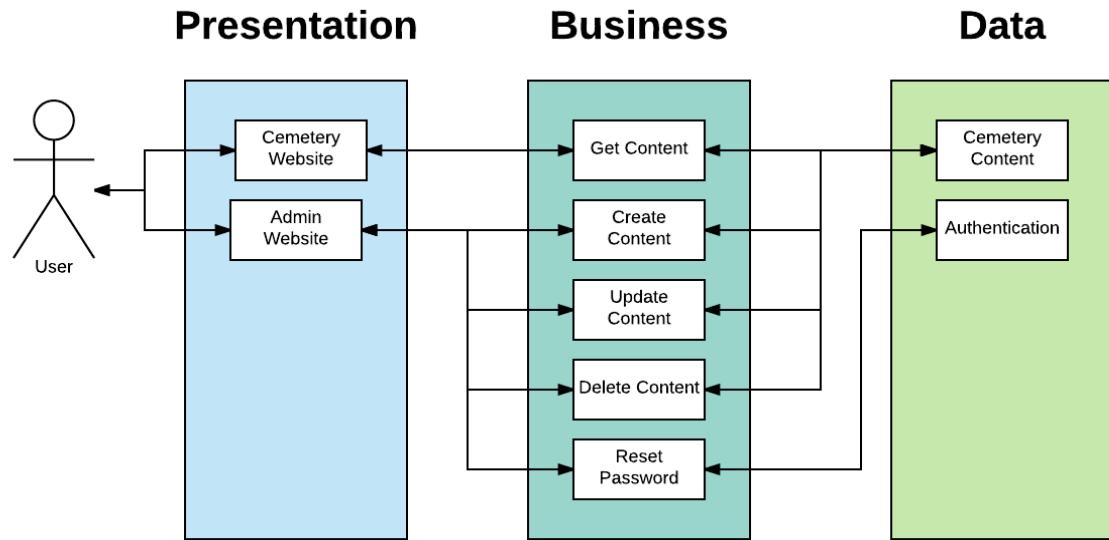


PHYSICAL ARCHITECTURE MODEL

The Physical Architecture Model is completely controlled by the ISP.



APPLICATION ARCHITECTURE MODEL



DATABASE MODEL

User		
PK	ID	int
	Username	VARCHAR(20)
	Password	VARCHAR(30)
	Salt	VARCHAR(10)
	Email	VARCHAR(40)
	CreatePrivilege	BOOL

Pins		
PK	ID	INT
	Name	VARCHAR(50)
	Lat	DECIMAL(16,14)
	Lon	DECIMAL(16,14)
	Summary	TINYTEXT
	Content	MEDIUMTEXT
	Image	MEDIUMTEXT
	Filters	TINYTEXT

content		
PK	ID	INT
	Page	ENUM('Home', 'Tombstones & Natural History', 'Nearby Historical Trails', 'About Us')
	DataType	ENUM('Large Title', 'Medium Title', 'Small Title', 'Link', 'Image', 'Paragraph')
	Text	TEXT

BUSINESS RULES

Roles:

Administrator - An administrator will be able to the following tasks:

- Create, Replace, Update, and Delete content on the website including gravestones, flora, and other locations.

User - A user will be able to do the following tasks:

- Use interactive map to view nearby key points
- Traverse to dynamically created maps

Constraints:

- Database Information will be provided by the Sponsors.
- The budget is small and undefined.

SECURITY MODEL

Authentication & Authorization

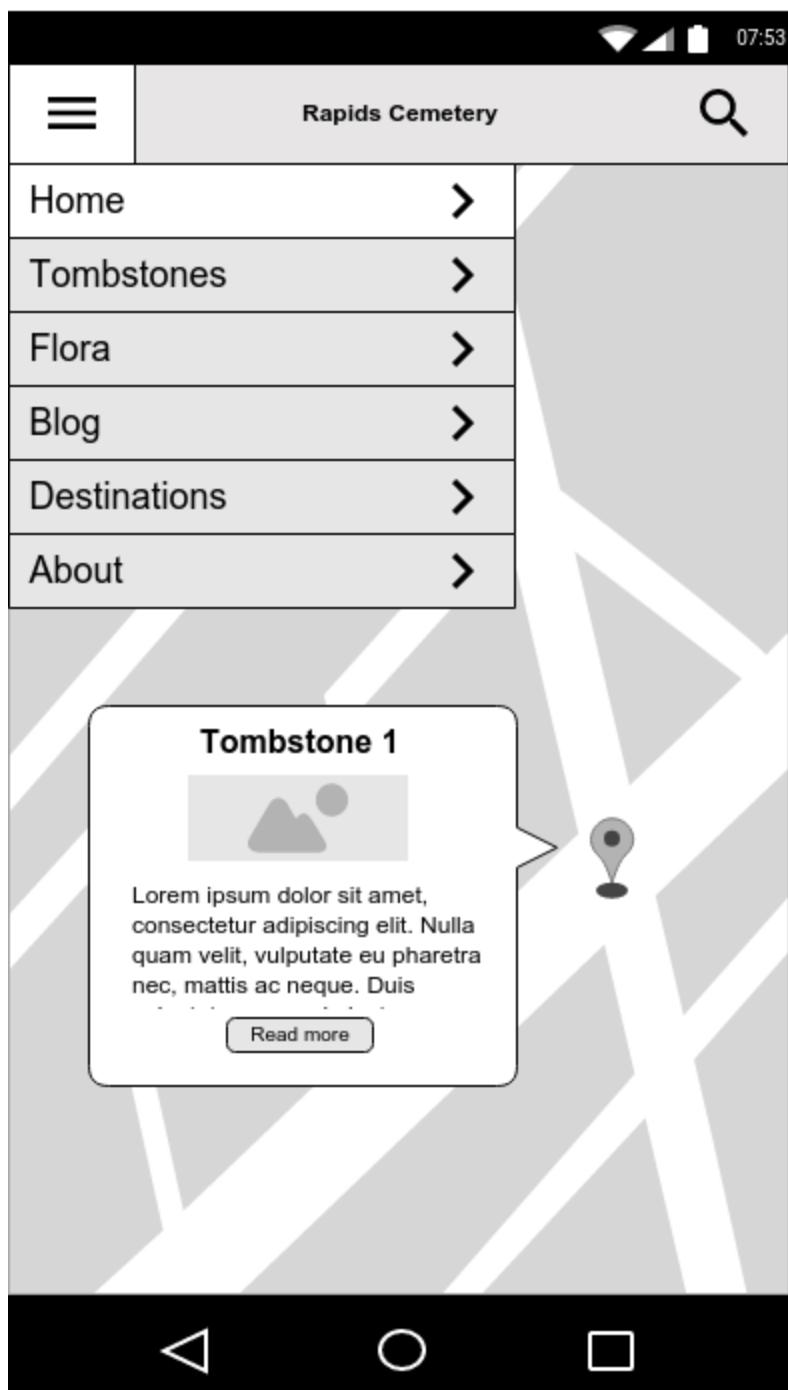
The authentication system in the authentication system in this project will only be used by the administrators to login to their accounts to add/remove/edit content on the site. The internal steps for the system will be as follows:

1. The admin accesses the web-page where they need to login and enters their user credentials consisting of a username and password
2. The credentials are sent to the web server over a secure connection
3. The backend of the web server hashes the password using the SHA2-256 hashing algorithm with a predetermined random salt that is stored with that users information in the database and comparing it to the stored hash value for the user's password in the database.
 - a. If the generated hash is equivalent to the stored hash in the database then the user is granted authentication and access to the admin panel.
 - b. A failed user attempt will return an error to the user asking them to check their admin username and password to see if they were correctly entered.

GUI MODEL

Note: User stories can be found in appendix A.





Rapids Cemetery

Administrator Interface

Rapids Cemetery

Admin Login

Username

Password

Remember me

Return

Footer

The screenshot shows a web-based administrator interface for 'Rapids Cemetery'. At the top, there's a header bar with the title 'Rapids Cemetery' on the left and 'Administrator Interface' on the right. Below the header, the main content area has a title 'Admin Login'. It contains fields for 'Username' and 'Password', a 'Remember me' checkbox (which is checked), and a 'Login' button. Below these fields is a 'Return' link with a left arrow icon. At the bottom of the page is a light gray footer bar with the word 'Footer' centered on it.

Rapids Cemetery

← → ↻ <http://rapidscemetary/admin>

Rapids Cemetery [Logout](#) | Administrator Interface

Manage Flora/Destinations

Add

Name	Coordinates	Description	Image
Example Flora	43.1294538,-77.6393189	Lorem ipsum dolor sit	flora1.jpg
Example Destination	43.1295025,-77.6391585	Lorem ipsum dolor sit	destination1.jpg

Save

Return

Footer

Rapids Cemetery

← → ↻ <http://rapidscemetary/admin>

Rapids Cemetery [Logout](#) | Administrator Interface

Manage Tombstones

Add

Name	Coordinates	Category	Tombstone
Captain Daniel Loomis	43.1294538,-77.6393189	War of 1812	D. Loomis Tombstone
Frederick L. Peiffer	43.1295025,-77.6391585	Spanish-American War	F.L. Peiffer Tombstone

Save

Return

Footer

Rapids Cemetery

<http://rapidscemetery>

Rapids Cemetery

Home Tombstones Flora Blog Destinations About

Slideshow

About

Image

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Get in touch



 Address
 Visiting time
 Phone
 Email

Footer

Rapids Cemetery

<http://rapidscemetery>

Rapids Cemetery

Home Tombstones Flora Blog Destinations About

Slideshow

Desktop map

Tombstone

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[Read more](#)

Paragraph 1

Paragraph 2

Footer

Rapids Cemetery
<http://rapidscemetery>

Rapids Cemetery Home Tombstones Flora Blog Destinations About

Slideshow

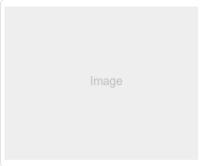


Destinations

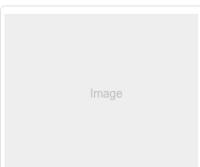


Destinations map

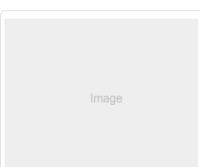
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Rapids Cemetery

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Rapids Cemetery

Home Tombstones Flora Blog Destinations About

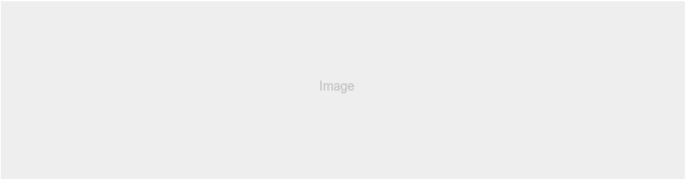


Slideshow

Blog

Search...

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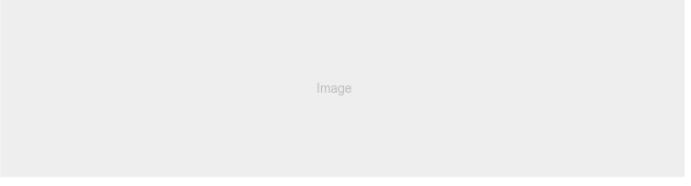


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Rapids Cemetery

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Rapids Cemetery

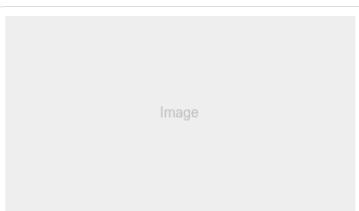
Home Tombstones Flora Blog Destinations About



Slideshow

Flora

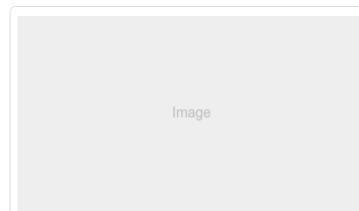
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Image

Placeholder text for flora category 1

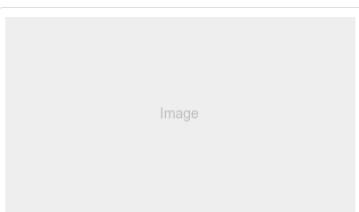
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Image

Placeholder text for flora category 2

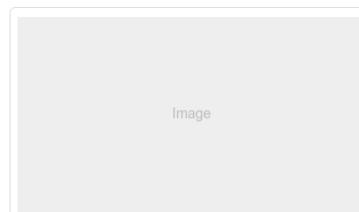
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Image

Placeholder text for flora category 3

Heading



Image

Placeholder text for flora category 4

Footer

Rapids Cemetery

<http://rapidscemetary>

Rapids Cemetery

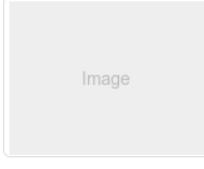
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Slideshow

Tombstones

Search...

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DATA DICTIONARY

Admin User

A member of the 19th Ward Community Association that has been given the authority and credentials to edit the content on the website through the content management site.

Admin Website

The content management site used by an Admin User to add, update, or remove content from the site.

Alternatives

Additional functionality that will be added to the site if times permits.

Cemetery Object

A tombstone, flora, or related destination.

Flora

A flower or a plant in the food forest at the cemetery and information about it. Examples include Forget-Me-Nots, Bloodroot, Poppies, Day-lilies, Solomon Seal, Black Raspberries, and Hostas.

General Website Content

The textual content on the site that is not specifically a tombstones, flora, or related destination.

LOE

Level of effort. The estimated time required to complete a task.

MVP

Minimal viable product. The most important features required for the website to serve its purpose.

Related Destination

A historical site or historical destination in the local area including the location and information about the site. Examples include the Susan B. Anthony home and Underground Railroad sites.

Tombstone

A tombstone at the cemetery including its location and information about the person buried there.

User

A person using the website. Examples include students, veterans, and community members.

DATABASE DATA DICTIONARY

Username

A unique username for an admin user used to login to the admin website. Must be 20 characters or less.
Example: john.doe

Password

A private and secure password for an admin user used to login to the admin website. Must be 30 characters or less.
Example: WhiteBatChair\$56

Salt

Random data that is used as an additional input to a one-way function that "hashes" a password or passphrase. Must be 10 characters or less.
Example: E1F53135E

Name

The name of a tombstone, flora, or related destination. Must be 30 characters or less.
Examples: George Washington, Poppies, Underground Railroad, etc.

Lat

The latitude location of a tombstone or related destination. Must be a 16 digit decimal number with 14 decimals.
Example: 25.38105967359435

Long

The longitude location of a tombstone or related destination. Must be a 16 digit decimal number with 14 decimals.
Example: 25.38105967359435

Summary

The summary data about the cemetery object that will be displayed when the user clicks on an item on the map.
Must be 255 characters or less.

Image

The name of the image file.
Example: flora1.jpg

Content

The textual content to displayed. Must be 65,535 characters or less.

Title

The title to be displayed with content. Must be 30 characters or less.