#include <cstdio>

#include <algorithm>

using namespace std;

#define Min(a, b) ((a)<(b)?(a):(b))

typedef long long LL;

LL t[1000010];

char s[1000010];

LL p[2000010], d[2000010];

int main()

{

LL n, m, r, k, l, c, i, j;

scanf("%lld%lld%s", &m, &n, s+1);

t[0] = -1;

for (i = 1; i <= n; i++)

{

j = i-1;

if (i == n)

i = i;

while (j)

{

if (s[t[j]+1] == s[i])

{

t[i] = t[j]+1;

break;

}

j = t[j];

}

}

for (i = 1; (i<<1) < n; i++)

if (t[n-(n%i)-1]+i+1 == n)

break;

if ((i<<1) < n)

n = i;

else

if ((t[n]<<1) >= n)

n -= t[n];

d[0] = 0;

for (i = 1; i <= m; i++)

{

scanf("%lld", p+i);

p[i] %= n;

}

r = n\*m;

sort(p+1, p+m+1);

for (i = 1; i <= m; i++)

p[i+m] = p[i]+n;

for (i = 1; i <= (m<<1); i++)

d[i] = d[i-1]+p[i];

for (i = 1; i <= m; i++)

{

k = i;

l = i+m-1;

while (l-k > 1)

{

c = (l+k)>>1;

if (p[c]-p[i] > (n>>1))

l = c;

else

k = c;

}

if (p[l]-p[i] <= (n>>1))

k = l;

r = Min(r, d[k]-d[i]-(k-i)\*p[i]+

(n+p[i])\*(i+m-k-1)-d[i+m-1]+d[k]);

}

printf("%lld\n", r);

return 0;

}